Vermont Public Transit Policy Plan 2019

DRAFT INTERIM REPORT

EXISTING CONDITIONS

August 14, 2019

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Introduction

Vision, Goals, Policy Framework

Policies/Recommendations

To be written upon project completion

Role of the PTPP

The Public Transit Policy Plan (PTPP) is one of five modal policy plans produced by the Vermont Agency of Transportation (VTrans). "Public transit" means transportation by a conveyance that provides regular and continuing general or special transportation to the public, including transportation provided by buses and vans operated by transit agencies, demand-response rides provided by volunteer drivers and taxis and scheduled through the transit agencies, intercity bus and rail and passenger ferries. The plan does not include school bus transportation operated by school districts nor charter bus service operated by private companies.

The first PTPP was published in January 2000 in response to an act of the Legislature requiring its development. Updated policy plans were produced in 2007 and 2012. Although each plan addressed a wide range of issues, the primary outcomes from each plan can be characterized as follows:

- 2000 PTPP – Expansion of the Elders and Persons with Disabilities program, including its integration with general public rural transit, and the establishment of regional E&D committees for all parts of Vermont
- 2007 PTPP – Expansion of commuter routes serving important job centers as well as the establishment of the performance monitoring process still in effect
- 2012 PTPP – Establishment of subsidized intercity bus routes in the Western Corridor and the US 4 Corridor to replace services that had been discontinued by Greyhound in 2005

In the course of developing the current PTPP and in gathering public input from stakeholders and the general public, it became clear that public transit will play an increasingly vital role in addressing a host of statewide issues ranging from mobility challenges facing an aging population, enhanced mobility options for commuters and younger Vermonters, and reduced greenhouse gas emissions.

In order to meet future needs, public transit infrastructure and services must be expanded and will require increased investment through innovative funding solutions. As VTrans and its partners move forward, the challenge is to make an honest assessment of Vermont's existing public transportation delivery systems and build consensus for the appropriate mix of growth, service efficiency and funding necessary to meet increased demand.

The current PTPP reviews and updates past policies and goals and develops strategies to meet the wide range of public transit challenges. It will serve as the primary guidance document for the continued growth and development of public transit in Vermont over the next ten years, with a further update expected after five years.

Current State Policy

The clearest policy statement with respect to public transportation is contained in Section 5083 of Chapter 126 of V.S.A. 24 (modified in the 2019 legislative session):

It shall be the state's policy to make maximum use of available federal funds for the support of public transportation. State operating support funds shall be included in agency operating budgets to the extent

that funds are available. State policy shall support the maintenance of existing public transit services and creation of new services including the following goals:

(1)   Provision for basic mobility for transit-dependent persons, as defined in the current public transit policy plan, including meeting the performance standards for urban, suburban, and rural areas…

(2)   Expanding public transit service in rural areas and increasing ridership statewide.

(3)   Access to employment, including creation of demand-response service.

(4)   Congestion mitigation to preserve air quality, decrease greenhouse gas emissions, and sustain the highway network.

(5)   Advancement of economic development objectives, including services for workers and visitors that support the travel and tourism industry…

These goals speak to the types of services that should be offered in different geographic areas. The various regions of Vermont have distinct needs and levels of demand for service. Vermont's public transportation providers have used a diverse set of services to meet the needs in their areas, while seeking to maximize efficiency through greater coordination of service among different travel markets (commuters, older adults, students, people with disabilities).

The current PTPP does not change the overall policy direction and goals as stated in the statute. VTrans' major goal is to preserve and enhance the level of public transportation services in Vermont. Performance monitoring of existing routes—by VTrans and the provider's boards of directors—is crucial to ensure that the public's investment in public transportation is well spent.

Role of the Human Service Transportation Coordination Plan

Beginning in 2008, the Federal Transit Administration (FTA) instituted a new requirement that states produce a human service transportation coordination plan (HSTCP). The plan was required to include an analysis of the transportation needs of individuals eligible for transportation under the Section 5310 program—that is, people over the age of 60 and people with disabilities—and to define a list of transportation projects that would address those needs. Funding for future projects would depend on their being listed in an approved HSTCP.[1]

VTrans produced a plan in 2008 and another one in 2014 to meet the federal requirements. Another update is now due, and VTrans decided to incorporate all of the content of the HSTCP into the PTPP so that one document would suffice for both the state and federal requirements. After all, a large portion of public transit in the rural areas of Vermont is oriented toward the same vulnerable populations covered by the HSTCP.

The result of this integration is that the current PTPP is more inclusive of human service transportation than past iterations, while still being consistent with the requirements of a PTPP. Sections of this report that fulfill the requirements of the HSTCP will be noted along the way.

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[1] https://www.transit.dot.gov/funding/grants/coordinated-public-transit-human-services-transportation-plans

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Overview of the Transit Network

Vermont is served by seven public transit providers that offer a range of transit services, from local fixed-route to commuter to demand response. Figure 1 portrays VTrans' map of service areas for these transit providers, and illustrates the fixed and deviated routes operated throughout the state. Demand-response services are offered by the public transit providers and their partners across the entire state. The broader transit network includes intercity bus and rail and ferries. All of these components are discussed below.

Since the first PTPP in 2000, there has been a significant amount of consolidation in transit operations in Vermont, with the number of distinct operators going from twelve to seven. Consolidations in the past eight years include the merger of Green Mountain Transit Agency into the Chittenden County Transportation Authority (renamed as Green Mountain Transit in 2016); the merger of Connecticut River Transit and Deerfield Valley Transit Association to become Southeast Vermont Transit; and the merger of Stagecoach Transportation Services and Addison County Transit Resources to become Tri-Valley Transit.

Brief summaries of the seven current transit providers are presented below.
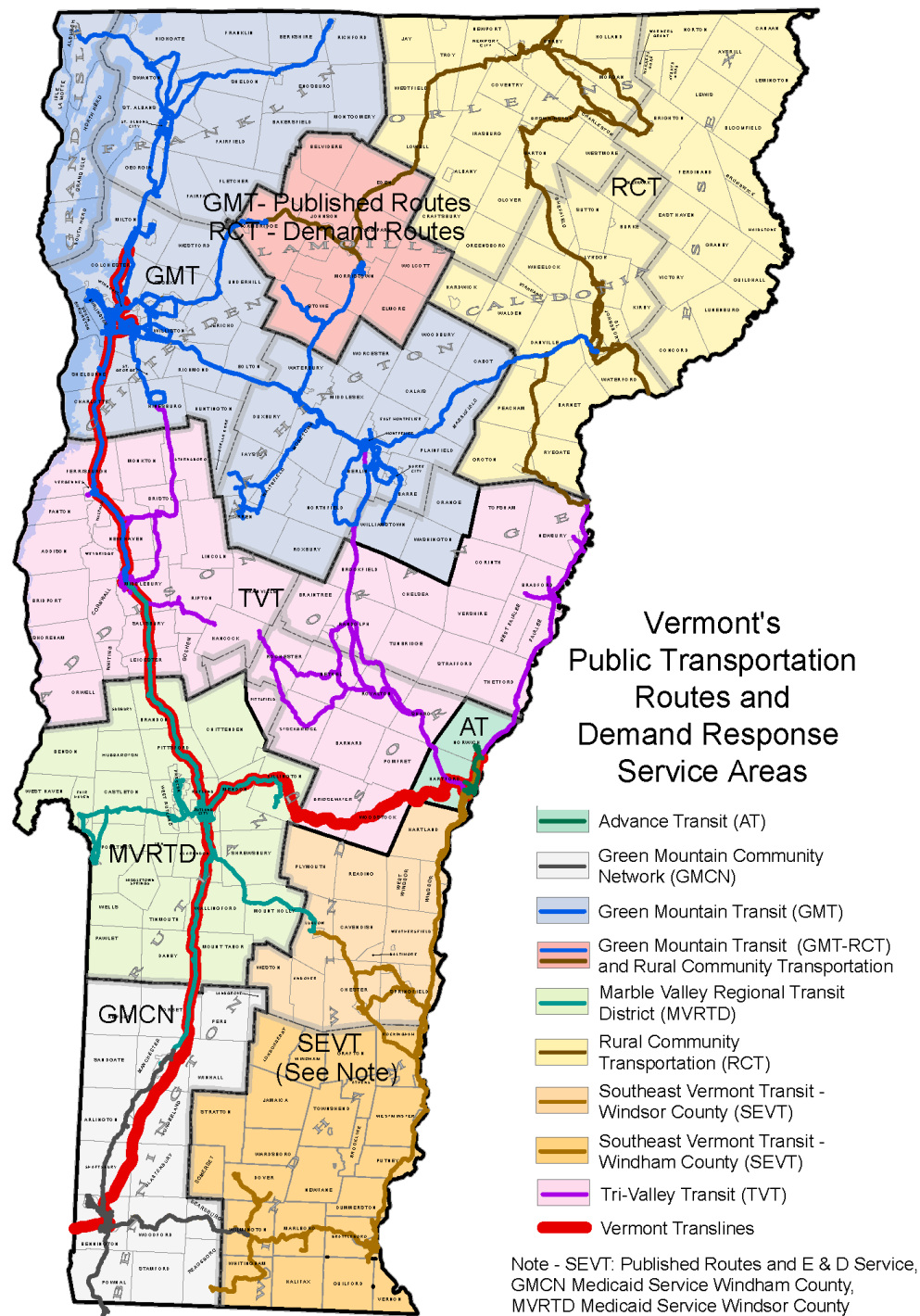
Advance Transit (AT)

AT provides public transit services in the Upper Valley, serving the towns of Hartford and Norwich in Vermont and Hanover and Lebanon in New Hampshire. AT also provides commuter service to Enfield and Canaan, New Hampshire. Three of the five fixed routes—Orange, Green and Brown—serve Vermont with connections to West Lebanon and Hanover. Buses operate Monday through Friday. AT has built strong partnerships with Dartmouth College and Dartmouth-Hitchcock Medical Center to provide high-quality shuttle services to these major employers in Hanover and Lebanon, NH. AT provides Americans with Disabilities Act (ADA) complementary paratransit service, called Access AT, for eligible persons with disabilities who cannot use the fixed-route bus services due to a disability.

Green Mountain Community Network (GMCN)

GMCN provides public transit service in and around Bennington County under the Green Mountain Express (GMX) brand. GMCN offers deviated fixed bus routes, demand response transportation for Medicaid, Reach-up, and older/disabled residents, as well as private pay services. Deviated fixed route services include: Bennington to Manchester, Bennington to Pownal and on to Williamstown, MA, Bennington to Wilmington, North Bennington, Shaftsbury, and around the town and up to Southern Vermont College. Partners for Elderly, Disabled and Visually Impaired Services include: Southwestern Vermont Medical Center; United Counseling Services; Bennington Project Independence, Southwestern VT Council on Aging and VT Association for the Blind and Visually Impaired. GMCN provides non-emergency medical transportation to both Bennington and Windham counties under contract to VPTA (see below). GMCN also maintains a pool of volunteer drivers who use their personal vehicles to transport a variety of clients.

Map Produced by the VTrans Mapping Section - 1/23/2018

Source: VTrans Website:
http://vtrans.vermont.gov/sites/aot/files/publictransit/documents/PublicTransportationProviderServiceAreas.pdf

Green Mountain Transit (GMT)

Green Mountain Transit is the main transit provider for Chittenden, Franklin, Grand Isle, Lamoille, and Washington counties. It operates all of the fixed and deviated route service in those counties, and all of the demand response service in Washington and Franklin counties. In Chittenden County, GMT offers local fixed routes, regional commuter routes, and interregional LINK Express routes. Fixed route service covers the communities of Burlington, Essex, South Burlington, Shelburne, Williston, and a portion of Colchester. Regional commuter services extend to Hinesburg, Milton, and Jeffersonville. LINK Express routes serve Montpelier, Middlebury, and St. Albans commuters, also stopping at park and rides and communities along the way. ADA paratransit and Elderly and Disabled services in Chittenden County are operated under a contract with Special Services Transportation Agency. GMT also provides shuttles from senior housing complexes to local supermarkets and neighborhood specials for student transportation to Burlington schools.

GMT also operates a variety of rural public transportation services including local routes, commuter routes, demand response medical shuttles, and service to elders and persons with disabilities in Washington, Lamoille, Franklin, and Grand Isle Counties. Services to elders and persons with disabilities in Grand Isle County are operated under contract by Champlain Islanders Developing Essential Resources, Inc (CIDER), and in Lamoille County these services are provided by Rural Community Transportation.

Marble Valley Regional Transit District (MVRTD)

MVRTD, known as "The Bus," serves Rutland County and operates a fixed-route network in the city of Rutland. MVRTD provides ADA complementary paratransit service for eligible passengers. MVRTD provides a deviated fixed-route service in Proctor with four trips a day, and The Bus operates several commuter routes between Rutland and other cities within Rutland County, as well as in adjacent counties. Seasonal service is provided to Killington to accommodate shift work in the resort area. Other services offered by The Bus include human service or contractual transportation with organizations including: Vocational Rehabilitation; Southwestern Vermont Council on Aging; Castleton Community Seniors; Inter-Age Adult Day Center; and the Foster Grandparent Program. MVRTD also provides subscription, point-to-point service in Rutland City and Rutland Town, and administers the Medicaid and Reach-Up Programs in Rutland County as well as the Medicaid program in southern Windsor County.

Rural Community Transportation (RCT)

RCT provides public transit in the Northeast Kingdom, including Caledonia, Essex, and Orleans Counties, as well as demand response service in Lamoille County. RCT provides transit through various modes, including buses, vans, volunteer drivers, and taxis. Services are available to the general public as well as the clients of partner human service agencies, including the Northeast Kingdom Council on Aging, Northeast Kingdom Human Services, Riverside Life Enrichment Center, and the Northeast Kingdom Community Action. RCT acts as the Medicaid/Reach-Up broker for its service area. RCT operates two deviated fixed-route services, which will deviate up to a quarter-mile from the published routes. RCT partners with GMT in providing a commuter service between Montpelier and St. Johnsbury, along the US 2 corridor. The agency also operates five "Green Express" shuttles that serve outlying villages and towns, primarily transporting riders for shopping trips.

Southeast Vermont Transit (SEVT)

SEVT is the designated public transit provider for Windham and southern Windsor Counties. SEVT provides fixed route bus services and demand response van service for the elderly or disabled. SEVT operates two divisions: The MOOver, which serves the Deerfield Valley and southern Vermont between Bennington and Brattleboro, and The Current which serves Brattleboro, Bellows Falls, and the Connecticut River Valley. Most of the services operated by the MOOver are oriented to the Mt. Snow ski resort, though several routes operate year round. The Current operates three fixed routes in Brattleboro, including one route that extends to Hinsdale, NH. North of Brattleboro, SEVT operates local shuttles in Bellows Falls and Springfield, as well as routes between Brattleboro and Bellows Falls and a route from Bellows Falls to Ludlow. Finally, the Current operates commuter express service from Rockingham to the Upper Valley, with stops at park-and-ride lots along I-91 and numerous stops at large employers and institutions in Lebanon and Hanover, NH.

Tri-Valley Transit (TVT)

TVT was formed in 2017 by the merger of Stagecoach Transit Services, Inc. (STSI) and Addison County Transit Resources (ACTR). The two services continue to operate Dial-a-Ride and deviated fixed route services under separate brands. The Dial-a-Ride System provides older adults, people with disabilities and many others access to comprehensive transportation alternatives. The deviated fixed route systems connect passengers to employment and shopping centers. ACTR predominantly serves Addison County with six different bus routes, including local shuttles in Middlebury and connections to Rutland and Burlington. STSI serves Orange and northern Windsor Counties, with eight bus routes through Central Vermont and linking to the Upper Valley.

Commuter and Intercity Transportation

Commuter Services

Most of the state's public transit providers also provide commuter services, which typically operate during peak periods Monday through Friday and include express segments. Across the state, these services provide economic lifelines for many outlying communities to access jobs and a range of services in larger cities, where major employers, medical centers, educational institutions, and retail centers are located. The commuter routes in Vermont are classified (in the annual performance review) as either express commuters (those that operate on highways into major employment centers) or rural commuters (those that operate on rural roads into smaller employment centers).

Express Commuters
- GMT: Montpelier – Burlington LINK Express
- GMT: Barre – Burlington LINK Express
- GMT: Middlebury – Burlington LINK Express
- GMT: St. Albans – Burlington LINK Express
- GMT: Milton – Burlington Commuter
- SEVT: Dartmouth-Hitchcock Medical Center Express Routes 71-74
- TVT: Randolph – Upper Valley (89er)
- TVT: Wells River – Upper Valley (River Route)

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Rural Commuters

- GMCN: Bennington – Manchester, N. Bennington – Southern VT College; Wilmington – Bennington (joint with SEVT)
- GMT: Alburgh – Georgia; Richford – St. Albans; Northfield – Montpelier; Morrisville – Waterbury; Montpelier – St. Johnsbury (joint with RCT); Waterbury – Montpelier; Middlebury/Hinesburg – Burlington (joint with TVT); Jeffersonville – Burlington
- MVRTD: Rutland – Ludlow; Fair Haven – Rutland; Manchester – Rutland; Middlebury – Rutland (joint with TVT)
- RCT: St. Johnsbury – Montpelier (joint with GMT); St. Johnsbury – Littleton
- SEVT: Bellows Falls – Brattleboro; Bellows Falls – Ludlow/Okemo; Readsboro – West Wilmington; West Dover; Wilmington – Bennington (joint with GMCN); Wilmington – Brattleboro
- TVT: Middlebury/Hinesburg – Burlington (joint with GMT); Middlebury – Rutland (joint with MVRTD); Randolph – Montpelier (89er North)

Intercity Bus

Intercity bus service connects passengers with major population centers inside and outside of Vermont and provides transit users a bridge between local transit systems. These services are operated by private providers on either a for-profit or grant-subsidized basis.

Since 2014, VTrans has distributed funds from the Federal Transit Administration to support routes on important corridors that were no longer served for-profit intercity bus service. A 2013 study of intercity bus services in Vermont commissioned by VTrans identified several priority intercity bus corridors: Burlington to Albany, NY; White River Junction to Springfield, MA; and Rutland to White River Junction. No service has yet emerged on the Newport – St. Johnsbury – White River Junction corridor, also identified as a priority corridor in the 2013 Intercity Bus Study.

Intercity services are currently provided by four private carriers: Greyhound Lines, Vermont Translines, Yankee Trails, and Megabus. Intercity bus service is fixed route, fixed-schedule bus service open to the general public, operated using over-the-road coaches with the capability of carrying baggage or package express.

Greyhound Lines service in Vermont is provided on two routes. Greyhound bus service from Montreal to Boston operates seven days per week, four times daily in each direction, with Vermont stops in downtown Burlington, Burlington International Airport, Montpelier, and White River Junction. Greyhound also offers one daily trip each direction from White River Junction to Springfield, MA, with additional Vermont stops in Bellows Falls and Brattleboro. This latter service receives a subsidy from VTrans.

Vermont Translines operates three intercity lines within the state with subsidies from VTrans. The company, a subsidiary of Premier Coach, began offering service in 2014 along US Route 7 from Colchester to Albany, NY, Route 4 from Rutland to Lebanon, NH, and a new shuttle (as of September 2017) from Manchester to Albany, NY via Bennington. These are all corridors identified as priority needs in the 2013 Intercity Bus Study.

Yankee Trails runs buses between Bennington and Albany, NY three times per day. It receives no subsidies.

Megabus service runs daily round-trip service from the University of Vermont in Burlington to Boston, with an additional stop in Montpelier. It also receives no subsidies.

Intercity Rail

Robust local transit systems are an important part of the State's efforts to implement its policy priorities and maximize leverage of passenger rail funding. Passengers who arrive by rail can use local transit not only to access local town centers, but also as a viable transportation option once they have reached their end destinations. Two Amtrak lines currently serve Vermont. The Ethan Allen Express provides daily service from New York, NY to Rutland, VT via Albany, NY. This train service also stops in Castleton, VT. The Vermonter provides daily service from Washington, D.C. to St. Albans, VT, with additional Vermont stops in Essex Junction / Burlington, Waterbury, Montpelier, Randolph, White River Junction, Windsor, Bellows Falls, and Brattleboro, and offers connections to Baltimore, Philadelphia, and New York. Both train services are subsidized by VTrans.

In 2017, as directed by the Vermont General Assembly, VTrans conducted a commuter rail feasibility study for the corridor between St. Albans, Essex Junction, and Montpelier, which also included a study of connecting service to Burlington. The legislature defined the purpose of the study as to "determine the feasibility of implementing a commuter rail system within the corridor, to estimate the time horizon to plan for and design the service, to estimate ridership potential, to estimate costs for operations and capital acquisition, and to identify any other general operational, capital, legal, and administrative requirements." The results of this study can be found [here](#).

More recently, VTrans has been approached by two organizations interested in pursuing additional passenger rail initiatives. These include the private Champ P3 development group interested in starting a commuter rail service linking St. Albans, Essex, Burlington, and Montpelier, which would fall under the jurisdiction of the Federal Transit Administration. Vermont does not currently have any commuter rail services and neither the State Rail Plan nor the State Public Transit Policy Plan include any commuter rail plans.

The Windham Regional Commission interested in extending two-daily Amtrak Intercity passenger rail (ICPR) services from Greenfield, MA to Brattleboro, VT, which would fall under the jurisdiction of the Federal Railroad Administration and federal rules for Section 209, state-supported services. AOT will monitor the planning undertaken by both organizations for any future determination on whether additional ICPR or commuter rail recommendations should be included in future state rail and public transit plans.

Vermont – New York Ferries

Two companies provide ferry service between Vermont and New York. Lake Champlain Transportation (DBA: Lake Champlain Ferries) offers three crossings: a Northern Crossing from Grand Isle, VT to Plattsburgh, NY; a Central Crossing from Burlington, VT to Port Kent, NY; and a Southern Crossing from Charlotte, VT to Essex, NY. Ticonderoga Ferry offers a crossing between Ticonderoga, NY and Shoreham, VT. These ferry services generally operate year-round, with availability depending on weather conditions during the winter months. Fares are charged for passengers, vehicles, and bicycles.

Go Vermont

Go Vermont is a VTrans travel demand management initiative aimed at providing easily accessible and reliable information about commuting and ridesharing resources, including transit routes and a carpool/vanpool matching service. The service was upgraded from a manual system to a web-based system

in 2010 and is available at http://www.connectingcommuters.org or through 1-800-685-RIDE (7433). The web-based system has freed up resources for outreach, marketing, and education through You-tube, television, and radio ads.

Specific features include the following:

- The rideshare/ride match program now has 5,245 registrants in the matching database. Registrants receive emails (optionally) and rewards for participating.
- The Guaranteed Ride Home program is available to all members. If the rider needs to get home in an emergency but does not have their car available because they carpooled or rode transit to work (or because their carpool driver is unable to drive them because of an emergency), the program will reimburse the rider for up to $70 to pay for a bus ride, car rental, carshare use, or taxi/Lyft/Uber ride.
- The Go Vermont trip planner helps users figure out all of the possible ways to accomplish a trip from point A to point B. Using newly-developed GTFS-flex technology, the trip planner goes beyond what regular Google Transit can offer, finding routes that would be overlooked by Google Transit's algorithm.
- The Capital Commuter program encourages Montpelier-based State employees to use transit or ridesharing options to get to work. It includes discounts on bus passes and preferential parking locations for carpools and vanpools.
- The Rides for Veterans program helps Vermont veterans to find transportation options in their communities. It provides community specific information and links to help veterans accomplish their trips.
- The Volunteer Driver program offers a collection information on the various programs administered by the transit providers and easy access to the applications for each provider to become a volunteer driver. All of the transit providers are in need of additional drivers, and this portion of the Go Vermont site helps to publicize the programs and guide people to applying.
- Links to other resources, including
  - Websites for all of Vermont's transit providers and intercity operators (including neighboring states)
  - Carshare Vermont (based in Burlington)
  - Information about bicycling in Vermont
  - Information about Lake Champlain ferries
  - Information about Amtrak service in Vermont
  - General information for the public and employers on the benefits of ridesharing and transit.

As discussed later in this report, further expansion, enhancement and promotion of Go Vermont will require continuing attention and investment by VTrans, but this can help solve the "awareness" challenge discussed in chapter 5 (yet to be written).

Transit Program

Vermont's public transit program is more than just the bus routes and other types of services operated in the state. This section describes the management role played by the Vermont Agency of Transportation, the structure of funding that pays for the services, and the partners VTrans works with to ensure that the services meet the needs of Vermonters.

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Management of the Transit Program

The Public Transit Section—part of VTrans' Policy, Planning and Intermodal Development Division (PPID)—is responsible for the vast majority of oversight of the public transit program in Vermont and leads the program to greater efficiency and effectiveness through several major initiatives, such as Go Vermont, Mobility on Demand, Rides to Wellness, enhanced demand response scheduling software, and others. The Public Transit Section consists of a Public Transit Manager and three Program Coordinators plus a Financial Administrator. The role of the Public Transit Section is to oversee how federal and state funds are utilized and to be a bridge between the federal government, state legislature, and the transit providers. The section ensures that transit providers are providing services that are efficient, address the needs of the traveling public, and are compliant with all relevant federal and state rules and regulations. Another section of PPID—Policy, Planning and Research—assists the Public Transit Section with certain long-term projects (such as the PTPP) and with interaction with the state's regional planning commissions and Metropolitan Planning Organization.

The guiding document for the oversight of the transit program is the State Management Plan (SMP). This document covers the requirements associated with the many federal funding programs that VTrans administers. These programs are discussed in more detail below. The SMP is periodically updated as federal regulations evolve and serves as the basis for triennial reviews conducted by the Federal Transit Administration.

The major components of the Public Transit Section's oversight responsibility include the following, based on requirements in current state legislation:

- **Managing Funds** – Manage federal and state operating and capital support funds in a manner that provides a foundation for financial stability and reliability in the provision of public transit services to the public. This involves meeting within the annual budget setting process with the Public Transit Advisory Council (PTAC) to establish the level of state funds needed by public transit in Vermont.
- **Monitoring** – Collect and analyze data on the effectiveness and efficiency of the public transit services funded under the state and federal programs. This includes evaluating both existing services and proposals for new services annually as well as adopting performance and service standards for transit systems receiving state and federal funds.
- **Training and Technical Assistance** - Provide guidance, training, funding, and technical assistance to transit systems to meet performance and service standards, in preparation of financial and management plans for each fiscal year,
- **Reporting -** Report to the legislature annually on financial and performance data for all public transit services that receive state and federal subsidies. VTrans reports annually to the legislature on transportation planning needs, expenditures, and cooperative planning efforts (S.5089) as well as to the federal funding sources.
- **Public Involvement and Consultation** - Develop the PTPP and HSTCP in consultation with stakeholders including the public transit providers, regional planning commissions, and their regional Transportation Advisory Committees. Working with the PTAC, VTrans establishes both short and long-range fiscal, operating and capital investment plans to support public transit goals. This element also includes consulting with these stakeholders annually in advance of the award of planning funds. Available planning funds shall be awarded in accordance with State and federal law and as deemed necessary and appropriate by VTrans following this consultation.

Funding for the Transit Program

Public transit in Vermont, as in many states, is funded primarily through federal (49 U.S.C.) and state transit programs. While Green Mountain Transit is a direct recipient of transit operating/capital funds for small urbanized areas, most of the federal funds coming to Vermont flow through VTrans to rural transit operators (section 5311). The State is the designated recipient of all federal rural transit funding as well as funding for specialized services under the Elderly and Persons with Disabilities program. The total amount of federal and state funding for public transit in Vermont is approximately $34 million annually. Note that this figure excludes approximately $6.1 million in urban operating and capital funds (5307) that flow directly to Green Mountain Transit and $335,000 in urban planning funds (5303) that go to CCRPC. Table 1 presents a summary of federal and state transit operating and capital funding for fiscal year 2019. The first column showing FTA section numbers is explained more fully on the next page.

Table 1: Fiscal Year 2019 Federal and State Funding by Category and Source

FTA Section [flexed]	Funding Category	Federal FTA	Federal FHWA	State	Total
5304	Planning	$115,000		$28,727	$143,727
[5307/5311]	CMAQ Service Expansions		$3,052,162	$334,343	$3,386,505
[5311]	Administrative Support		$416,185	$126,146	$542,331
[5311]	Rural Transit Administrative		$2,828,910	$21,090	$2,850,000
[5307/5311]	Maintenance Assistance		$3,750,000		$3,750,000
5311	Rural Transit Operating	$3,650,000		$166,396	$3,816,396
	State Operating			$6,075,000	$6,075,000
5311(b)(3)	Rural Technical Assistance Program	$115,000			$115,000
[5311]	Special Services for Elders and PWD		$4,000,000	$101,784	$4,101,784
[5311]	Reserve for E&D		$160,000	$40,000	$200,000
n/a	VT Kidney Association Grant			$50,000	$50,000
n/a	Go Vermont Marketing (CMAQ)		$850,356	$178,144	$1,028,500
5339+ [5307/5311]	Capital - General Public	$1,750,000	$4,173,480	$552,392	$6,475,872
5310	Capital - E&D	$546,674		$68,327	$615,001
[5307/5311]	Capital - Facilities		$467,008	$177,992	$645,000
	TOTALS	**$6,176,674**	**$19,698,101**	**$7,920,341**	**$33,795,116**

As can be seen in the table, in addition to $6.1 million in public transit dollars from the Federal Transit Administration (FTA), Vermont "flexes" (transfers) highway funds from the Federal Highway Administration (FHWA) into the state's transit program. The total amount flexed in Fiscal Year 2019 was nearly $20 million, or more than three times the revenue directly from FTA. These FHWA funds, before they can be spent on public transit, need to be flexed into existing FTA funding programs. The programs being flexed into are shown in [brackets] on the table. Those lines that show [5307/5311] reflect that a portion of the flexed funds are going to the Burlington urbanized area into section 5307, while the rest go into the non-urban section 5311 program. The individual FTA programs, by section number, are described below.

- **Section 5304 – Statewide Transportation Planning Program and Section 5303 – Metropolitan Transportation Planning Program -** These programs provide funding to support cooperative, continuous, and comprehensive planning for making transportation investment

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decisions in metropolitan areas and statewide. Federal planning funds are first apportioned to VTrans which then passes through metropolitan planning funding to the CCRPC which in turn passes funding on to GMT for its planning activities.

- **Section 5307 – Urbanized Area Formula Program –** This program provides transit subsidies in urbanized areas under 200,000 in population, of which there is just one in Vermont, the Burlington urbanized area. For urban areas of this size, S.5307 funds can be used for operating or capital and the federal program will pay for up to 80% of capital items and 50% of the net deficit for operating expenses, up to an annually allocated amount.

- **Section 5310 – Elderly Persons and Persons with Disabilities Capital Program -** Funding from FTA under S.5310 is available for capital assistance for private non-profit entities or public bodies providing coordinated transportation services to older adults and person with disabilities. The federal program pays for up to 80% of the capital costs. Projects must be part of a locally developed coordinated human service – public transit plan to be eligible for funding.

- **Section 5311 – Non-Urbanized Area Formula Program –** S.5311 provides federal operating and capital funds in rural areas with less than 50,000 people (this encompasses all areas in Vermont outside the Burlington urbanized area). The program pays for up to 80% of capital and administrative expenses and 50% of the net deficit (costs minus operating revenue) for operating, up to an annually allocated amount.   Federal funds are allocated to states annually.

- **Section 5311 (b)(3) – Rural Technical Assistance Program (RTAP)** – The RTAP program provides funding to assist in the design and implementation of training and technical assistance projects and other support services tailored to meet the needs of transit operators in nonurbanized areas.

- **Section 5311(f) Intercity Bus Program –** The S.5311(f) program allows states to subsidize intercity bus needs using their S.5311 formula grant funds. The state must use 15% of its annual apportionment to support intercity bus service, unless the Governor certifies, after consultation with affected intercity bus providers that the needs of the state are adequately met.

- **Section 5339 – Bus and Bus Related Equipment and Facilities Program** – This program provides capital assistance for new and replacement buses, related equipment, and facilities. It is a discretionary program to supplement formula funding in both urbanized and rural areas.

- **Surface Transportation Program [FHWA] for RPC/MPO Planning Assistance** – Transit planning is an eligible STP funded activity and, as such, regional planning organizations assist transit operators with their local transit planning using FHWA funds through the VTrans Transportation Planning Initiative or CCMPO funding.

- **Congestion Mitigation/Air Quality Program [FHWA]** – CMAQ is a program to support areas of air quality non-attainment. Since Vermont is not "out of attainment," it can use CMAQ for eligible activities including new transit demonstrations/starts through flexing of FHWA funds.

Aside from the federal formula programs, Vermont also receives funding from federal competitive/ discretionary programs. Examples include capital funding from the "State of Good Repair" program, discretionary grants from the section 5339 "Bus and Bus Facilities" program, planning and operation funds

from a Rides to Wellness grant (described elsewhere in the PTPP), and a Mobility On Demand grant to work with technology companies to expand access to traveler information.

Vermont is a leader among small states in flexing highway funds for public transit, and the State has introduced other innovative features into the program over the past 15 years as well:

- VTrans' integrates E&D operating funds with its Non-Urbanized Area Formula Grants (S.5311). The goal of the integrated program is to maximize coordination between human service agencies and public transit providers, and to improve the utilization of unused vehicle capacity on vehicles formerly restricted to E&D.
- VTrans provides nearly $4 million in funding for its Rural Preventive Maintenance program in an effort to prolong the life of the operators' fleets. By "capitalizing" rural preventive maintenance, those costs are eligible for 80% from the federal program, and the transit providers only have to provide 20% in local share.
- The state has used highway funds from the Congestion Mitigation/Air Quality program to encourage the transit providers to create new routes and expand service on existing routes. For most routes, this funding lasts for a three-year period, at which point VTrans will offer other funding for any route which has proved itself viable.

State transit funding per capita in Vermont is higher than in other states with similar rural/urban mix. According to the 2010 census (the most recent time that urban and rural areas were defined) Vermont is the second most rural state in the country with 61.1% of its population residing in rural areas. (Maine has 61.3% of its population in rural areas.) Despite its rural character, the State will spend about $12.65 in state funds per capita on transit services in 2019. According to the 2018 *AASHTO Survey of State Funding for Public Transportation*, the other ten states with over 40% or more of their population in rural areas spent an average of $1.39 per capita in state funds, only about 11% of what Vermont spent. Only one of these states, North Dakota—at $6.86—spent more than $1.28 per capita. Removing that state from the mix, the other nine most rural states spent an average of only 78 cents per capita, barely 6% of what Vermont spent.

Matching Funds

Local match refers to the money that FTA requires from projects that is from non-federal sources. From FTA's perspective, all non-federal funding is local and can include State or local funds. Operating assistance requires a 50% match of the federal funds (one non-federal dollar for each federal dollar), while capital, administration, marketing, preventive maintenance and planning assistance requires a 20% match (one non-federal dollar for each four federal dollars).

The Vermont Legislature created the State Operating Program to provide a portion of the non-federal share for the federal operating subsidies in the non-urbanized areas. There is no prescribed share of the operating subsidy that comes from the State. Available State funds are allocated among the rural operators based on need and maximizing the federal dollars available.

For capital expenditures, the State provides half of the non-federal share, that is, 10% of the project cost. The other half of the non-federal share must come from local funds.

Transit providers can raise local funds from several sources, including property tax revenue from municipalities they serve, sales tax revenue from those communities that have a local option sales tax, and private sector funds from institutional partners, contracts with human service agencies, ski resorts,

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businesses or individual donations. By federal rules, farebox revenue does not count as local match (it is taken off the top to determine what the operating deficit is). To secure the property tax revenue, transit systems generally are required to appeal to the towns for support through Town Meeting ballot initiatives, thereby competing with the local funding for most other services such as school and police. While this requires a considerable effort on the part of the transit systems, it is consistent with the State goal to preserve and enhance the level of public transit services by encouraging local financial support for those services. Many local transit providers rely heavily on contracts with human service agencies as a source of non-federal matching funds.

Partners in the Transit Program

Regional Planning Commissions and Transportation Advisory Councils

Through its Transportation Planning Initiative, VTrans collaborates with the states eleven regional planning commissions (RPCs) to carry out transportation planning at the regional level. RPCs enter into cooperative agreements with VTrans for the agency to provide FHWA planning funds in exchange for collaborative transportation planning. The RPC in Chittenden County also serves as the Metropolitan Planning Organization (MPO), a federally-required organization for any urbanized area with a population of at least 50,000. Within its area of jurisdiction, the MPO, in coordination with VTrans and the area's transit provider Green Mountain Transit, plans all surface transportation infrastructure and services – including public transportation. With VTrans' approval, the MPO is a direct recipient of urban planning funds and GMT is a direct recipient of urban operating and capital funds.

Each of Vermont's 11 RPCs has a Transportation Advisory Council. The TACs include representatives from each town and some representation from the local transit operator. The MPO has a Public Transit Advisory Committee as well as a TAC that makes recommendations on action items to be considered by the full Board of Directors.

Agency of Human Services

Many of the Vermonters served by the Agency of Human Services (AHS) face challenges related to transportation. Whether because of age, disability or income, many Vermonters cannot drive and rely on public transit for their mobility. The departments within AHS that work with VTrans and the transit providers most actively are primarily concerned with transportation to and from medical appointments, community meals programs, shopping opportunities, adult day centers and other essential services. AHS also works with vulnerable Vermonters to help them obtain and maintain employment—access to jobs is a key issue facing many low-income individuals. The two AHS departments with the most active relationships are the Department of Disabilities, Aging and Independent Living (DAIL) and the Department of Vermont Health Access (DVHA) which administers the Medicaid program and contracts with VPTA (see below) to provide non-emergency medical transportation. The Department for Children and Families, which administers the Reach Up program, also interacts with transit providers to meet the mobility needs of the clients of that program.

As discussed elsewhere in this report (section yet to be written), VTrans and DAIL are coordinating their policy efforts to address the growing needs of older adults for mobility assistance. With the leading edge of the Baby Boom generation entering their 80s during the 10-year timeframe of this PTPP, it is essential that Vermont prepare for the mobility challenges ahead.

Public Transit Advisory Council

The Public Transit Advisory Council's (PTAC) role as stated in the V.S.A. Title 24, Chapter 126, Section 5084 is to "serve as an advisory group to the agency of transportation on all matters relating to public transit service". PTAC is chaired by VTrans' Secretary and composed of representatives from a wide range of public transit interests including representatives from the Vermont Public Transportation Association, Green Mountain Transit Authority, Agency of Human Services, Agency of Commerce and Community Development, Vermont Center for Independent Living, Council of Vermont Elders, Vermont Association of Planning and Development, a "nonprofit purchaser of elderly public transit services," the State Legislature, and a citizen appointed by the governor. Since PTAC is made up of representatives from so many stakeholders throughout the state, it is a vehicle for communication and collaboration to improve public transportation for Vermont residents and visitors.

Vermont Public Transportation Association

The Vermont Public Transportation Association (VPTA) comprises representatives from the state's seven transit providers. VPTA's mission is "to improve mobility of people in Vermont by increasing awareness of public transportation benefits and needs through education and advocacy." The Association participates in supporting and providing numerous public services, including dissemination of information on public transportation in Vermont and recommendations to the state Legislature. VPTA has contracts with various government agencies to improve and administer transportation services. The most important such contract is with DVHA to provide non-emergency medical transportation (NEMT) all over Vermont. VPTA then subcontracts with the transit providers to operate and broker the NEMT service.

Transit Providers

The seven public transit providers are critical participants in supplying reliable transportation options to Vermont residents and visitors, especially for those people who are transportation disadvantaged. Each operates in a different geographic location within the state, with little overlap in the system. All providers offer demand response service; many operate fixed routes. Still others located near ski resorts also run seasonal services that support the state's tourism industry.

Others

In addition to those mentioned above, the following are also important stakeholders in the public transportation system: transit riders; businesses, institutions and towns that support public transportation; local "cares" groups and other volunteer organizations that provide rides; the United Ways of Vermont and Vermont 2-1-1, which provides information on transportation resources; and health care providers that help support transit access to health care facilities.

Prior Studies

VTrans has commissioned and performed many plans and studies on public transportation in recent years. These studies provide specific transit policy and service recommendations, outline strategies for public involvement, and assess the transportation needs of human services providers statewide. Overall, these documents help to direct the state's public transit policies and identify trends in the community's transportation needs to provide a better understanding of the role public transportation plays in the state of Vermont. The Steadman Hill Consulting team identified and reviewed the following studies that are directly relevant to Vermont's Public Transit Policy Plan and Human Service Transportation Coordination Plan:

Transportation & Transit Plans

- Vermont Public Transit Policy Plan (2012)
- Vermont Public Transit Policy Plan (2007)
- 2040 Vermont Long-Range Transportation Plan (2018)
- State Management Plan for Vermont Public Transit Programs (2015)
- Public Transit Route Performance Reviews Annual Report (State Fiscal Year 2017)
- Vermont Statewide Intercity Bus Study Update (2013)
- VTrans Public Involvement Guide (2017)
- Tri-Valley Transit Annual Report (2017)
- Chittenden County Transportation Authority Transit Development Plan (2010)
- Green Mountain Transportation Authority Transit Development Plan (2012)

Transportation-Related Human Service Plans

- Elders & Persons with Disabilities Program Guidance (2004)
- Human Service Transportation Coordination Plan (2014)
- Vermont State Plan on Aging Needs Assessment (2017)
- Vermont Elders & Persons with Disability Transportation Program Review (2015)
- Exploring Transportation Behaviors and Needs of Veterans and People with Physical Disabilities and Mobility Constraints (2017)
- Opioid Coordination Committee – Transportation Working Group Findings (2018)
- Rides to Wellness Implementation Plan (2018)

A summary of each study is provided in Appendix A, including the purpose of the study and the implication of the project.

Best Practices

Introduction

This section summarizes the key information and findings of statewide public transportation/transit plans prepared by Idaho, Iowa, Maine, and Minnesota. A detailed look at each of these statewide plans is provided in Appendix B.

Initially, plans from 23 states were reviewed and analyzed to determine feasibility for this effort. The four states selected were those in which statewide transit plans, or similar studies, had been prepared in recent years. Additionally, the peer review focused on plans in states that are similar to Vermont in population, population density, and percent of urban and rural population, as shown in A summary of each plan is provided, including the purpose of the plan, its goals, funding strategies, and supporting policies. Key challenges faced by the states and key recommendations, policies, and funding that could impact this study are highlighted.

Table 2. Of the selected states, Maine's characteristics most closely match those of Vermont. Despite having larger populations, all states are less densely populated than Vermont. Although Minnesota stands out in terms of population, the transit plan in study covers an area of 80 counties outside of the Twin Cities called Greater Minnesota. This area presents population and density comparable to the other selected states.

A summary of each plan is provided, including the purpose of the plan, its goals, funding strategies, and supporting policies. Key challenges faced by the states and key recommendations, policies, and funding that could impact this study are highlighted.

Table 2: Population and density in comparison states.

State	Population and Density				
	2017 Population	2010 Population	2010 Pop/Sq. Mi	2010 Percent Pop in Urban Areas	2010 Percent Pop in Rural Areas
Idaho	1,716,943	1,567,582	18.7	70.6	29.4
Iowa	3,134,479	3,046,355	54.5	64.0	36.0
Maine	1,335,907	1,328,361	41.3	38.7	61.3
Minnesota	5,576,606	5,303,925	61.8	73.3	26.7
Vermont	**623,657**	**625,741**	**66.1**	**38.9**	**61.1**

Source: U.S. Census.

Key Findings

This section highlights comparative goals, challenges, and strategies identified and proposed by each state. Public transportation goals in these plans are used to describe the desired future for public transportation in the state, and to establish priorities and guidance for future public transportation investments.

Goals

A summary of the elements of the goals appearing in those plans, and the states to which they apply, is shown in Table 3. The most frequently occurring goal elements across these plans include:

- Preserve existing network
- Service expansion/enhancement where justified and as resources permit
- Ensure a range of mobility options/modes
- Expand education outreach, and marketing
- Ensure safety and security

Table 3: Statewide transit plan goals by state

Goals	Idaho	Iowa	Maine	Minnesota
FUNDING				
Ensure fiscal responsibility			●	●
Involve partners in funding transit services			●	
Utilize a range of funding sources			●	

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Goals	Idaho	Iowa	Maine	Minnesota
Partnerships, especially with the private sector				●
SERVICE DELIVERY				
Preserve existing network	●		●	●
Expansion/enhancement where justified and as resources permit	●		●	●
Provide appropriate level of service in all communities		●		●
Ensure a range of mobility options/modes		●	●	●
Encourage public transportation use	●			●
Improve efficiency through coordination			●	
Coordination between transit services and human service organizations/transportation				●
Increase transit ridership				●
Improve passenger experience				●
PUBLIC INFORMATION AND OUTREACH				
Expand education outreach, and marketing	●		●	●
Build trust			●	
OTHER				
Support economic opportunity	●		●	
Transportation and land use coordination	●	●	●	
Energy independency and environmental responsibility		●		
Ensure safety and security		●	●	

Challenges

A summary of the major challenges identified in the plans is shown in Table 4. Limited operating funding is listed as a major challenge in all the plans, other frequently occurring challenges include:

- Funding source restrictions
- Difficulty in obtaining local matching funds
- Service gaps

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Table 4: Statewide transit plan identified challenges by state

Challenges	Idaho	Iowa	Maine	Minnesota
Limited operating funding	●	●	●	●
Limited capital expansion funding	●	●		
Funding source restrictions	●		●	●
Difficulty in obtaining local matching funds	●		●	●
Increase in operating costs				●
Insufficient fare and contract revenues				●
Lack of new potential source of state funds for public transportation			●	
Service gaps	●	●	●	●
Low productivity and performance of transit systems			●	
Intercity service high costs			●	
Difficulty in providing service in small communities		●		

Performance Measurement

The establishment and use of performance measures to achieve their goals is a strategy common to all plans. The state of Minnesota, for example, developed a performance-monitoring framework using metrics at both the state and local level. State-level metrics include four performance measures (ridership, fleet condition, span of service, and on-time performance) and evaluation criteria used to monitor the transit systems. MnDOT also uses evaluation criteria to assess transit systems for strengths and weaknesses in order to make informed funding decisions. At the local level, MnDOT recommends that providers use performance guidelines and standards to monitor their own services.

MnDOT annually evaluates transit system performance to prioritize operating and capital projects. MnDOT ranks each system based on a series of specific criteria and assigns each transit system a score. Based on the evaluation criteria, the transit systems are nominally ranked and scores within the bottom 10 percent are targeted for additional technical assistance from MnDOT.

Strategies

A summary of the main strategies proposed in the plans, and the states to which they apply, is shown in Table 5. A column for Vermont has been added to indicate which strategies have already been employed in the state. Common strategies across the plans include:

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- Identify and seek out opportunities to apply for available federal, state, and local funds to address identified unmet needs;
- Maintain, develop, and encourage partnerships among stakeholders for planning and implementation of coordinated transportation solutions;
- Monitor performance of current and future public transportation services;
- Expand education, outreach, and marketing.

Table 5: Statewide transit plan proposed strategies by state

Strategies	Idaho	Iowa	Maine	Minnesota	Vermont
FUNDING					
Identify and seek out opportunities to apply for available federal, state, and local funds to address identified unmet needs	●	●	●		●
Formalize state's passenger transportation funding participation role		●			
Lottery revenue as potential source of funds			●		
Improve grant decision making process			●		●
Continue to support the transit infrastructure grant program		●			●
SERVICE DELIVERY					
Consider investing in technology systems that contribute to more efficient and sustainable service delivery	●			●	●
Maintain, develop, and encourage partnerships among stakeholders for planning and implementation of coordinated transportation solutions	●	●		●	●
Encourage volunteer networks and alternatives to traditional transit services			●	●	●
Invest in customer amenities that improve the transit experience				●	●
Support Medicaid Enterprise Transportation Brokerage		●			
PERFORMANCE MONITORING					

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Strategies	Idaho	Iowa	Maine	Minnesota	Vermont
Establish performance standards for new and expanded services	●		●		?
Monitor performance of current and future public transportation services	●	●	●	●	●
Safety/security and service quality performance monitoring system	●				●
PUBLIC INFORMATION AND OUTREACH					
Expand education, outreach, and marketing	●		●	●	●
Develop clear, comprehensive, and accessible public information about transit services	●			●	●
OTHER POLICIES					
Strengthen local coordination of land use decisions with transportation plans		●			
Develop strategies for first and last mile rider needs				●	●
Improve and update State Management Plan			●		●
Establish a Public Transportation Advisory Group			●		●

Finally, it is worth highlighting Iowa's strategy of strengthening local coordination of land use decisions with transportation plans. This plan proposes that additional coordination with transportation services should be incorporated into the long-range land use planning process and identifies topics that require more evaluation:

- Reduce potential conflicts created by approving residential developments that need passenger transportation service but are proposed for areas where passenger transportation service is not provided and is not expected to be provided in the foreseeable future;
- Increase the level of coordination that occurs in the determining the location for a new medical facility and the need for passenger transportation services;
- Promote the livable communities concept in the land use decision-making process.

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Aging Population

America's population overall is growing older, and northern New England is leading this trend. While the median age in the US was 38.1 years in 2016, the three northern New England states had the highest median ages of all states, at 44.6 in Maine, 43.2 in New Hampshire, and 42.6 years in Vermont[2]. As recently as 1990, Vermont's median age was just under 33 years, the same as the nation[3].

According to the US Census, 17% of Vermonters were age 65 or older, compared to 15.6% in the nation[4]. The aging of Vermont is accelerating; between 2010 and 2017, the number of Vermont residents over 65 years old grew by 18,500. This change has happened within a stagnant overall population, which means a similar decline in the number of people under the age of 65 as can be seen in Figure 2.

Figure 2 | Number of individuals by age category in 2000, 2010, and 2017, in Vermont.
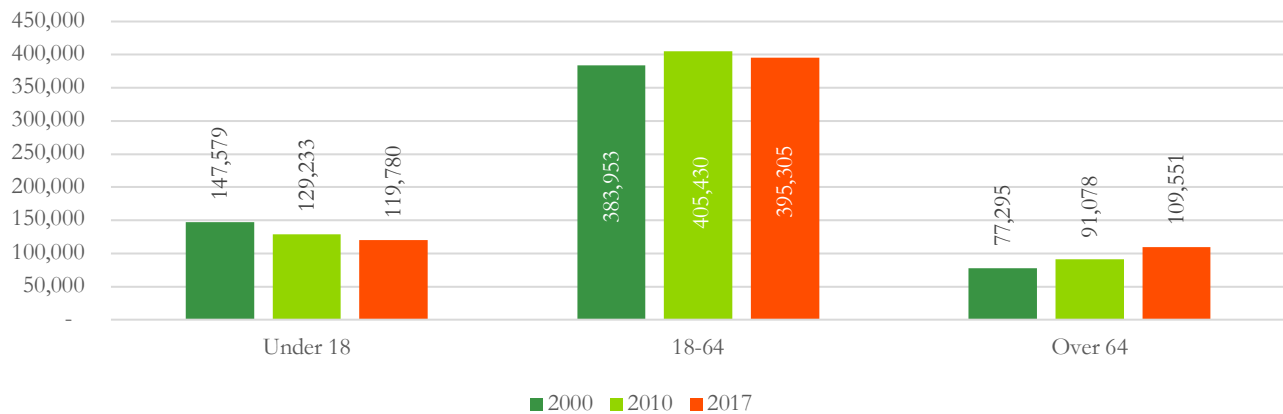
As shown in Figure 3, the Northeast Kingdom and the southernmost counties in the state had the highest percentages of older adults, while the northwest corner of the state and central Vermont had the lowest percentages. However, because Chittenden County accounts for over 25% of the state's population, it has by far the largest number of older adults, at nearly 22,000, almost double the number of older adults in the three counties of the Northeast Kingdom, combined. Chittenden County, notably, had the highest percentage of "working age" adults (18-64), consistent with its role as the economic engine of Vermont.

According to the *Demographic and Economic Trends & Forecasts Report,* produced in support of the *2040 Vermont Long-Range Transportation Plan,* Vermont's population is forecast to increase by 0.174% on average between now and 2046, resulting in a total population of 660,000 in that year.[5] In contrast to that slow overall growth, the number of residents age 65 or older is forecast to increase quickly, from 18% of the population

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[2] U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

[3] "Vermont State Plan on Aging." Vermont Agency of Human Services Department of Disabilities, Aging and Independent Living (DAIL). https://asd.vermont.gov/sites/asd/files/documents/VT%20State%20Plan%20on%20Aging_2018_FINAL%20APPROVED_1.pdf
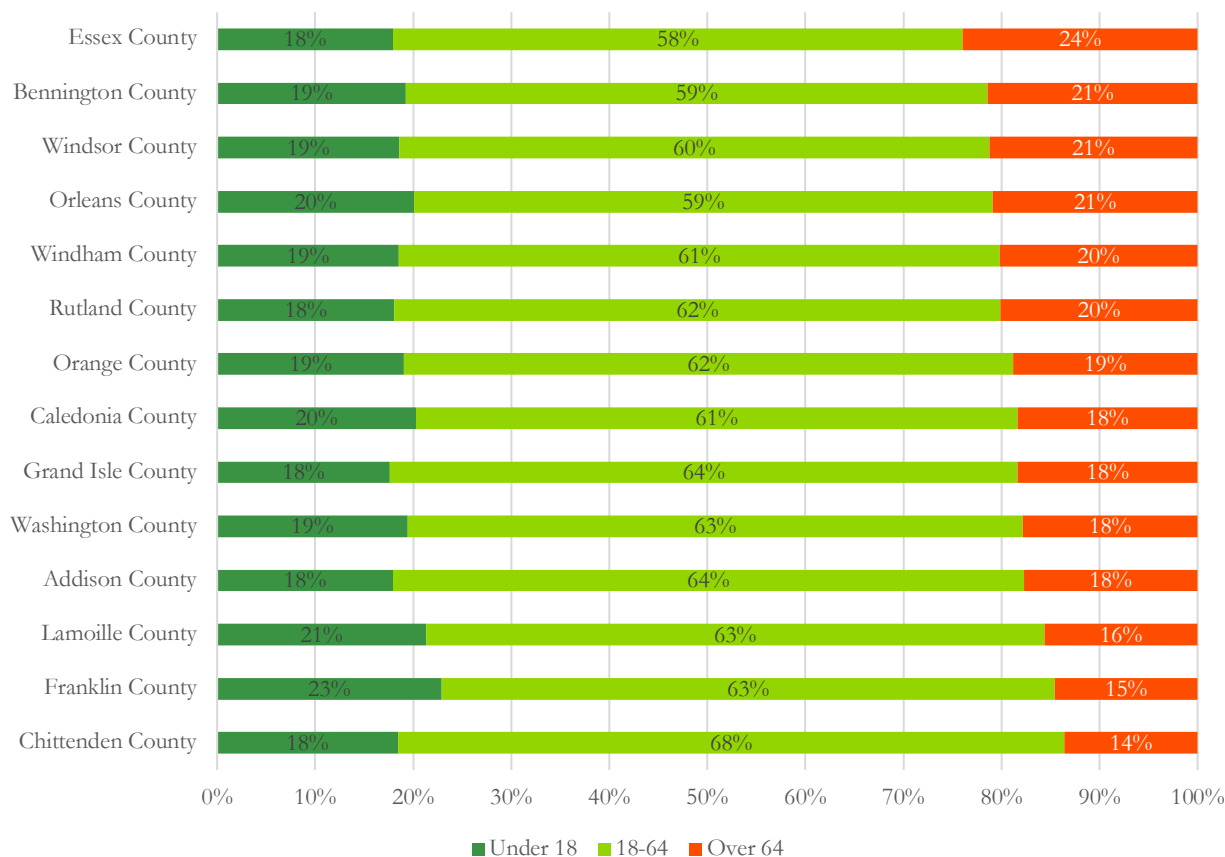
[4] U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

[5] *Demographic and Economic Trends & Forecasts Report,* RSG and Economic & Policy Resources, Inc., p. 5.

in 2015 to 27% of the population in 2030, reaching a plateau at that level for the remainder of the forecast period. [6] These percentages translate into an increase from about 110,000 older adults today to 175,000 in the year 2030, an increase of nearly 60%

Figure 3 | Percent of population by age group by county in Vermont in 2017

County	Under 18	18-64	Over 64
Essex County	18%	58%	24%
Bennington County	19%	59%	21%
Windsor County	19%	60%	21%
Orleans County	20%	59%	21%
Windham County	19%	61%	20%
Rutland County	18%	62%	20%
Orange County	19%	62%	19%
Caledonia County	20%	61%	18%
Grand Isle County	18%	64%	18%
Washington County	19%	63%	18%
Addison County	18%	64%	18%
Lamoille County	21%	63%	16%
Franklin County	23%	63%	15%
Chittenden County	18%	68%	14%

■ Under 18   ■ 18-64   ■ Over 64

The Challenge of Aging in Place and Maintaining Independence

Older adults face significant problems as soon as their ability to drive becomes limited. These problems include access to medical care, shopping, other services and social isolation. As Morken and Warner[7] explain, older adults in rural areas will experience those problems more strongly because lower residential density and limited service infrastructure pose greater challenges to serving older residents. In contrast, older adults in town centers, villages and cities may continue to be able to accomplish many of their trips by walking and may also have easier access to friends and neighbors who can travel short distances to help. As will be discussed in more detail in the section below on housing, Vermont is a predominantly rural state with very low population densities outside of Chittenden County and the other small cities located along the I-89, I-91 and US 7 corridors. This rural land use pattern emphasizes the challenge for aging in place for most of Vermont's older adults.

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[6] Ibid., p. 19.
[7] "Planning for the Aging Population: Rural Responses to the Challenge." Lydia Morken and Mildred Warner. Available at: http://s3.amazonaws.com/mildredwarner.org/attachments/000/000/196/original/5a05087ac5578fa1f3cbf7b4fcefb24a

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In a survey conducted in October 2017 as part of the [State Plan on Aging](#) (December 2017), when asked to identify challenging types of trips, Vermonters ranked visit to family or friend and entertainment and social events as the most difficult to achieve. For those who currently have mobility limitations, transportation assistance programs are geared mainly toward medical appointments and shopping. It is recognized that social isolation is a significant problem, but there are not sufficient resources available in existing programs to address it adequately. It is impossible to separate the effects of social isolation from overall wellness. Indeed, as Morken and Warner note: "research shows that weak social connections are on par with smoking and alcohol consumption – and trump obesity and physical inactivity – as risk factors in mortality."

Travel Needs of an Aging Population

Transportation services used by older Vermonters are similar to those used by younger people until physical limitations begin to affect their abilities. At first, it may be a reluctance to drive at night or in bad weather when fast reflexes are needed and visibility may be poor. In more urban areas, as they feel these limitations, older adults may begin to use bus services or rely on friends to give them rides. In more rural areas, where existing resources are not as obvious, they will begin to learn about the range of services available to them, supported by funds from the federal government, the Vermont Agency of Transportation and the Agency of Human Services, including the Medicaid program.

The survey in the *State Plan on Aging* found that the great majority of older adults still use automobiles for all or most of their transportation needs, and among these seniors, there is a fear that losing their ability to drive will leave them stranded in their homes. However, many of these older adults are likely not yet aware of the services that exist both in urban and rural areas in Vermont. While the available resources are not sufficient to maintain the level of mobility that a private automobile can provide, they are designed to address the essential needs of older Vermonters. The challenge moving forward is how to address the needs of a population of older adults that is 60% larger than what we have today and how information about services can get to this population both to allay fears and to allow them to plan for future mobility before it becomes a crisis. Encouraging "younger seniors" to make use of existing services now both increases the productivity of those services and eases the transition to non-automobile mobility when they can no longer drive.

Potential Strategies

When confronted with the challenge of an aging population who will experience mobility challenges sooner or later, and the leading edge of the Baby Boomers reaching their eighties within the next decade, three broad strategies present themselves.

- Make town/village centers, where needed services are more accessible and social interactions more possible, more attractive so that older adults will choose to move there from isolated rural areas.
- Plan for a significant expansion of rural transit services (primarily demand response) so that older adults living outside of town and village centers can maintain access to needed services.
- Rely on technology, such as autonomous vehicles, virtual reality, drones, etc. to provide access and services to older adults in rural areas without a major increase in transportation labor expenses.

Vermont's policy goals have long encouraged housing development in existing town and village centers. One of the three main principles in the Long-Range Transportation Plan states:

> *Focus on downtown & village investments - Vermont has for many years supported planning, regulatory and funding programs, and policies aimed at downtown and village development and redevelopment. Focused growth centers place*

housing, shopping and services, and employment closely together. Mixed use development such as this can reduce the transportation demand placed on our highways, along with the associated energy consumption and tailpipe emissions. Compact development also supports the viability of public transit services and walking and bicycling as a means of transport.

Out of over $35 million spent on public transit annually in Vermont (including federal, state, local, and institutional partner funds), nearly $12 million (just about one third) is spent on demand response service and other transit in rural areas.[8] To address the future mobility needs of the Baby Boom generation and following generations, should they decide to remain in their rural homes, this outlay would need to increase significantly. The Needs Analysis section of the PTPP will estimate what the financial implications would be of this policy choice, but it is clear that the millions of dollars already spent on transportation for older adults[9] would have to grow by a large factor. If that were feasible, it would lead to a further challenge of finding a sufficient number of drivers to operate the trips to reach the riders, whether they are volunteer or professional drivers. There is already a shortage of volunteer drivers today, when the Baby Boomers are in their sixties and early seventies, and thus most appropriate to be a driver, rather than a rider. The PTPP will have recommendations for ways to increase the number of volunteer drivers in the pool, but the currently available strategies may not be sufficient for the future wave of older adults above the age of eighty.

Technology can often supply cost-effective solutions to problems, but it is unclear if it will be able to solve the problem of mobility for older adults in rural areas. *Technology and Vermont's Transportation System,* a white paper developed for the Long-Range Transportation Plan, discussed the state of the art (as of 2016) in various technologies that could affect mobility in Vermont. By the year 2030, it is possible that autonomous vehicles could comprise half of the vehicle fleet nationally, though only a small portion of those would be true "driverless" cars.[10] Existing driverless technology relies on extensive 3D mapping and stripes on the road to guide the car. Commercial GPS is not precise enough to keep a driverless car in a lane. Given that about half of the road mileage in Vermont is on dirt roads without any stripes, and that these roads can become nearly impassable during mud season, it seems unlikely that a driverless car will be able to reach the home of an elderly resident on a mountain road in the near future, but automakers are working to overcome these challenges with high-resolution mapping and the potential use of military GPS, which is much more precise than the commercial variety, among other technologies. The white paper notes the potential mobility benefits of autonomous vehicles, as well as other transportation and land use impacts.

Other technological advances may be able to meet some of the needs of people in remote areas. Drone delivery services do not face the same obstacles as driverless cars and could function to bring meals or medical supplies to remote areas. Amazon is working on such delivery technology, but the regulatory framework is not yet in place to allow for such deliveries to occur. Video connections and virtual reality could help older adults to feel less isolated even if they cannot easily be in the same room as other people. This technology could also obviate the need for some medical trips, as "telemedicine" grows in rural areas. Such technology would depend on robust Internet service, which is still unavailable in many remote areas.

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[8] Figures from the SFY 2018 Route Performance Review. The $12 million figure includes the following service categories: Demand Response, Rural, Rural Commuter, and Volunteer Driver. It excludes Small Town, Tourism, Intercity, and Express Commuter all of which operate partly or wholly in rural areas but are nonetheless more similar to urban bus routes. It also, of course, excludes the Urban category based in Chittenden County.

[9] In SFY 2018, the total amount spent in the Elders and Persons with Disabilities program was $4.98 million. That figure is part of the $12 million referred to earlier.

[10] *Technology and Vermont's Transportation System*, Dubois & King, VEIC, and Smart Mobility, 2017, p. 20.

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Thus, while technology could help in some areas, it is unlikely to solve all of the problems faced by older adults in rural areas within the next decade.

Economic Trends and Opportunities

As noted in an article in the Burlington Free Press in 2016, the story of economic opportunities is a "Tale of two Vermonts." Between 2010, when the economy started growing after the Great Recession, and 2016, job growth in northwestern Vermont (including Chittenden County, Grand Isle County and a spine of towns along the western edge of the state between Vergennes and Swanton) amounted to 13%, while growth in the rest of the state was "anemic, at only 4.6%."[11] Outside of Vermont's one urban area, growth has been slow for many years, and this has limited the opportunities for residents in these areas to find jobs. The economic stagnation is correlated with stagnation in the housing supply and in population; people move to areas and spur growth in housing when there are new jobs available. This section explores the role of public transit in both the fast growing area of Chittenden County (and to a lesser extent, the Upper Valley straddling the Connecticut River) as well as its role in assisting people in slow-growing areas to reach job opportunities which may be more distant.

Across North America, public transportation helps rural communities to become more efficient and equitable. It helps ensure that all residents, including non-drivers, enjoy independent mobility and receive a fair share of public spending on transportation facilities and services. In this context, public transit can help support rural economies in ways such as[12]:

- It helps attract and retain residents who cannot drive (including older Americans, young people, people with disabilities and lower-incomes) and tourists, therefore helping to support local businesses, healthcare centers, and schools.
- It can help businesses reduce their parking costs, which is particularly important for revitalizing older downtowns, and for developing large institutions such as colleges and hospitals.

A 1998 Transit Cooperative Research Program (TCRP) Report assessing the economic impacts of rural public transportation found that there was an 11% difference in average net earnings growth between rural counties that had public transit systems and those without it[13]. The researchers also discovered an economic multiplier of 3.35 for every dollar of federal investment in rural public transit.

Public Transit and Vermont Economic Trends

As noted above, economic growth in Vermont has been unequally distributed. As documented in *State of Working: Vermont 2018*, a report by the Public Assets Institute,[14] between 2007 and 2017, six northwestern counties accounted for all of the job growth, while seven counties to the east and south actually lost jobs (see Figure 4). Chittenden County accounts for a third of all jobs in Vermont (as of 2017) and over half of the jobs created since the Great Recession.[15]

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[11] https://www.burlingtonfreepress.com/story/money/2016/11/17/tale-two-vermonts-where-jobs-and-not/93967306/

[12] "Public Transportation's Impact on Rural and Small Towns." Todd Litman. Available at: https://www.apta.com/resources/reportsandpublications/Documents/APTA-Rural-Transit-2017.pdf
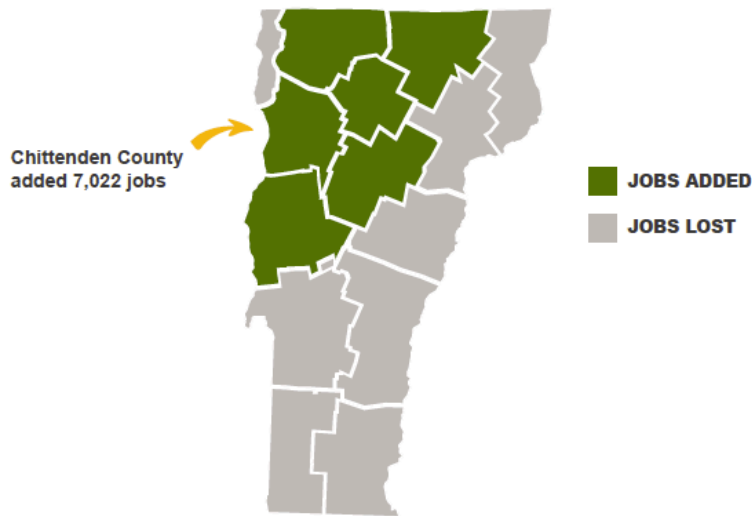
[13] "Assessment of the Economic Impacts of Rural Public Transportation." Jon E. Burkhardt, James L. Hedrick and Adam T. Mcgavock. Available at: http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_34.pdf

[14] https://publicassets.org/wp-content/uploads/2019/01/SWVT2018final.pdf

[15] Ibid., p. 20

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Figure 4 | Change in Jobs by County 2007– 2017

Chittenden County added 7,022 jobs

JOBS ADDED
JOBS LOST

Data source: U.S. Bureau of Labor Statistics

For a growing job center, public transit can play a critical role in allowing growth to happen in an efficient way, both in terms of land use, as well as the use of energy resources. One of the least productive uses of land is a parking lot, and while a parking garage may have a smaller footprint relative to parking capacity, such structures are very expensive to build and maintain. Available parking also encourages people to drive to work, mostly with one person in the car, which is the most energy-intensive way to commute, on a per-passenger basis. Convenient transit access allows economic growth to happen without the inefficient land use of large parking lots and inefficient energy use of single-occupant vehicles. The primary opportunities for transit to play this role are located in the core of Chittenden County (Burlington, Winooski, and parts of South Burlington) and in the Upper Valley (Hanover and Lebanon, NH and White River Junction). Cooperation and collaboration between large employers and institutions—such as the University of Vermont, Dartmouth College, UVM Medical Center, Dartmouth-Hitchcock Medical Center—and transit agencies such as Green Mountain Transit and Advance Transit can help the employers save money that would otherwise be devoted to parking and help the transit providers gain new riders. Transit also plays an important role at Vermont's ski areas, where they provide efficient access for workers and skiers, allowing for a reduced footprint for parking and less traffic congestion.

In most of the rest of Vermont, public transit plays a very different role with respect to economic opportunity. Vermont's rural communities were historically spaced between 2 and 10 miles apart and each provided services such as schools and churches, while some also developed general stores, town halls, libraries, fire stations, and commercial downtowns. Many of these town centers exist to this day, some "with a remarkable degree of vitality." However, many of these rural areas are also experiencing aging infrastructure, limited growth, and economic hardships.[16]

Access to Jobs and Services

Rural communities face several challenges in providing accessibility and the transportation connections between the community and its needs. Local markets and shops have been closing as they face competition from "big box" and online retailers. This means not only that people may have to travel farther to do their shopping, but that the local jobs associated with these local services have disappeared. Years ago, small town residents may have been able to accomplish most of their trips on foot—to work, to eat, to shop, to conduct personal business—but now many or all of these trips may require longer trips. The University of

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[16] State of Vermont 2020 Comprehensive Economic Development Strategy. https://accd.vermont.gov/economic-development/major-initiatives/ceds

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Vermont Transportation Research Center has found that Vermonters travel longer distances than the national household average for shopping trips, including groceries and clothing: 6.7 miles (one-way) compared to the national average of 5.6 miles.[17] Furthermore, residents of rural areas in Vermont tend to travel longer distances than urban Vermonters: less than 5% of urban residents travel more than 10 miles for a shopping trip, while over 20% of rural Vermonters travel at least 10 miles (one-way) to go shopping.[18]

Public transportation, including local bus, paratransit, medical transport, and other services, can play a vital role for people in rural communities. Rural public transportation is most effective when it can[19]:

- provide rural commuters with access to their jobs, either in rural areas or in town/cities;
- provide relatively high levels of service to their localities (to permit the generation of significant economic impacts);
- leverage economies of scale offered by the transportation services (such as providing service to the regional airports, medical centers, and commercial businesses);
- focus on education, job training, or other "human investment" programs;
- serve expanding retirement, recreation and tourism communities; and
- provide cost-effective access to public services, health services, and shopping for rural, often older, people with limited transportation options.

It must be recognized that in rural areas, fixed-route bus services are unlikely to generate enough riders to be viable. Towns with reasonably dense village centers may be able to support a bus route connecting to other towns or a larger city. Indeed, as jobs and shops vanish from small towns, a bus route can serve as a lifeline to allow people who may not be able to drive or to afford a car to be able to continue to work and have access to other essential needs.

The Future of Access to Jobs

Economic forecasts for Vermont predict slow growth in the number of jobs statewide. A technical report done as part of the Long-Range Transportation Plan estimated annual statewide growth at 0.81%, with employment increasing from about 320,000 in 2019 to about 350,000 by 2030.[20] There will likely continue to be a split between growth in Chittenden County and the rest of the state, though western Franklin County and parts of Addison County have shown recent growth and are predicted to have the fastest growth over the next 30 years.[21]

The type of job available in Vermont has also been changing, with a shift away from manufacturing and toward services. As shown in Figure 5, there has been a substantial shift in the past decade in several sectors of the economy. It is notable that the second largest decline in employment is in the retail trade category, reflecting the closure of retail stores in the face of online competition.

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[17] The University of Vermont Transportation Research Center, "NHTS – Vermont: Travel for Food in Vermont and Northern New England," June 2011.
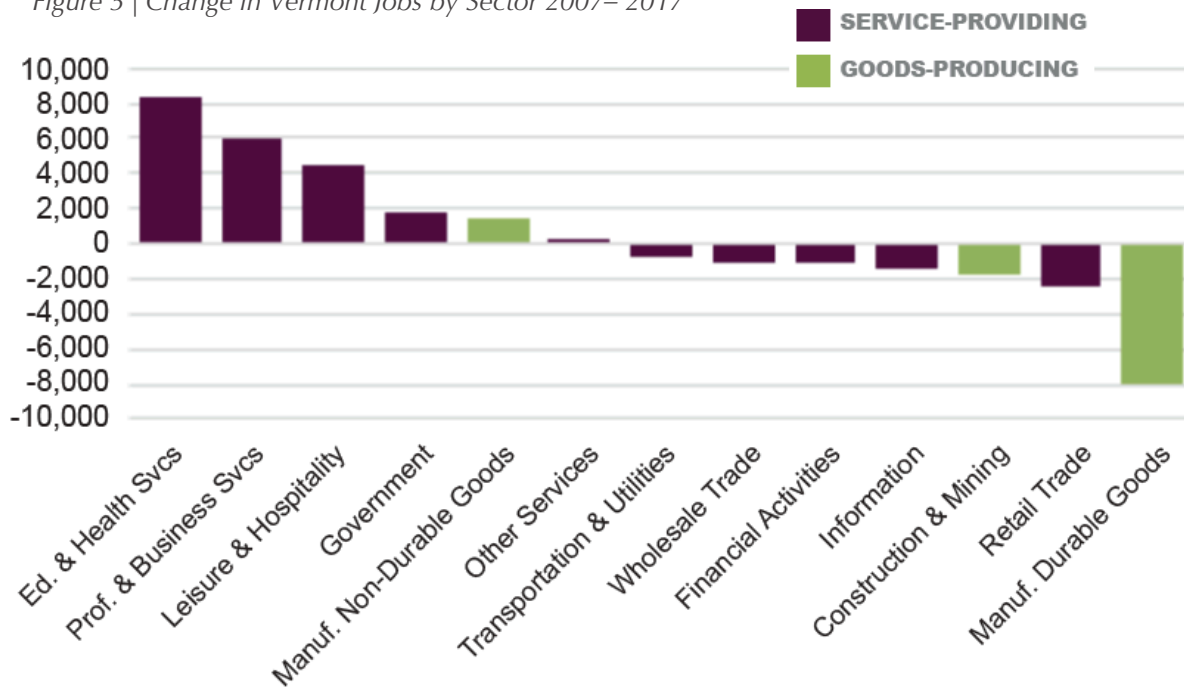[18] Ibid.
[19] "Assessment of the Economic Impacts of Rural Public Transportation." Jon E. Burkhardt, James L. Hedrick and Adam T. Mcgavock. Available at: http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_34.pdf
[20] Demographic & Economic Trends & Forecasts Report, RSG & EPR, 2016, p. 25.
[21] Ibid., p. 26.

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Figure 5 | Change in Vermont Jobs by Sector 2007– 2017

Data source: Vermont Department of Labor
©2018 Public Assets Institute

Freight employment, which is correlated with manufacturing, is forecast to decline gradually over the coming period from a level of about 50,000 jobs currently, to about 45,000 jobs in 2030.[22] Employment in the service sector of the economy will take up the slack, accounting for much of the predicted overall growth in employment. Some portion of the service sector will reduce the amount of commuting needed, as more people choose to work at home or in local co-work spaces.

For people who need to commute and who do not have ready access to private automobiles, Go! Vermont[23] can serve as a centralized resource of transportation information and access to alternatives to driving. It is the primary public access to Vermont's statewide transportation demand management (TDM) program and is a clearinghouse for all kinds of alternative transportation options, including carpools, vanpools, public transit, and rail services, as well as park-&-ride locations. The website offers a rideshare searching tool within Vermont and describes the state's "Guaranteed Ride Home" benefit for bus riders and carpoolers that reimburses up to $70 travel costs if someone needs to get home and is not able to via their regular shared-ride mode.

Over the past 15 years, VTrans has provided funding for numerous commuter routes in Vermont, serving both large and small job centers. Express commuter routes operate on Interstate and state highways into the core of Chittenden County and to Hanover and Lebanon, New Hampshire. Rural commuter routes operate on state highways, connecting rural towns to small and moderate job centers including Rutland, Montpelier, Manchester, Middlebury, St. Albans, Wilmington, Waterbury, Bennington, Brattleboro, Randolph, and St.

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[22] Ibid., p. 27.
[23] https://www.connectingcommuters.org/

Johnsbury. Indeed, "Rural Commuter" is the largest category of bus routes in the state, with 31 individual services currently operated. VTrans will continue to support bus routes where they are viable and will encourage people in other areas to take advantage of ridesharing opportunities and vanpools to be able to reach jobs.

Technology and Information

Emerging Transportation Technologies

Technology is having an ever-greater impact on public transportation in Vermont and across the world. With today's technology, a transit operator can track and schedule service vehicles more efficiently and improve the user experience by providing consumer access to real-time, integrated transit information services. In Vermont, Green Mountain Transit , Advance Transit, Rural Community Transportation, and The MOOver are already providing real-time information to passengers on the current location of transit vehicles. The ability to conveniently request, track, and pay for trips via mobile devices is changing the way people get around.

Transit Information

Access to real-time transit data is playing a central role in traveler information services. Intelligent transportation system (ITS) technologies support the monitoring in real time of a range of information that can be shared with travelers[24]. Mobile applications aggregate information to provide users with a menu of real-time transportation options to get to their destination, including transit, taxi service, carsharing, bikesharing, and ride-hailing. RCT, using a grant from the US Department of Agriculture, developed a smartphone app that shows the location of all of their buses and vans, as well as some volunteer drivers and local taxis. The app then provides a phone number to allow people to request a ride on one of those vehicles.

VTrans provides improved information to the public using an open-source platform, OpenTripPlanner. A modified version of the General Transit Feed Specification (GTFS) standard, called GTFS-Flex, incorporates several transportation services into one trip planner. The primary benefit of this is that far fewer trips are rejected as "not possible" as GTFS-Flex can suggest connections between fixed route transit and flexible transit, while other trip planners based on the GTFS standard would only show connections between fixed route transit and walking, biking, or driving modes. Future development goals are for GTFS-Flex data to capture carpools, airport shuttles, taxi cabs, and transportation network companies, and to incorporate real-time demand response trips into the trip planner[25].

Operational Management

Transit operators have been deploying software to optimize operations through more efficient tracking and scheduling of service vehicles. Rural transit service operators have also been breaking out of traditional siloed operational models and using software to broker greater integration and coordination among the

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[24] "Emerging Technology Trends In Transportation." Eno Center for Transportation, ICF International. See: https://www.enotrans.org/wp-content/uploads/EmergingTech.v13.pdf?x43122

[25] "The Future of Rural Transportation and Mobility for Older Adults: Current Trends and Future Directions in Technology-enabled Solutions." Andrew Broderick. See: https://www.giaging.org/documents/180424_CITRIS_rural_mobility_paper_F.pdf

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different transit modes available within a community. Then, rather than introducing new services, existing transportation assets can be deployed more efficiently and the current capacity better managed.

Public transit agencies and other public-sector entities can build on the mobility innovations of technology-enabled shared-use modes[26]. For example, new dynamic scheduling systems are impacting the deployment of paratransit in several ways:

- Interactive reservation, confirmation, schedule adjustment, and cancellation systems;
- Dynamic dispatch and routing of vehicles;
- Route combination for riders with similar origins/destinations;
- Mobile app-based payment integrated into reservation systems;
- Ability to track vehicle arrival and share trip details, location, and estimated arrival time with caregivers or other third parties; and
- Real-time customer feedback.

Mobility on Demand

Mobility on Demand (MOD) is a transportation concept where consumers can access goods and services on demand by using an integrated and connected multi-modal network of shared mobility, goods delivery, and public transit service solutions. The most advanced forms of MOD passenger services incorporate trip planning and booking, real-time information, and fare payment into a single user interface. Passenger modes facilitated through MOD providers include carsharing, bikesharing, ridesharing, ridesourcing/transportation network companies (TNCs), scooter sharing, microtransit, shuttle services, public transportation, and other emerging transportation solutions.

Urban areas play a leading role in driving innovation and action. The application of the MOD framework in rural areas is challenging given that the low densities of dwellings and populations can limit opportunities to create operational efficiencies at scale. Some elements of the MOD concept applied to rural areas include:

- **Hail-and-ride** is one of the most common forms of semi-flexible transit in rural areas. Vehicles providing this type of service can stop anywhere that is safe along a road since designated stops are not needed every few blocks as in urban areas. The GTFS-flex specification allows the trip planner to suggest short walks to access a hail-and-ride service, instead of directing the person to a fixed route stop, or returning no possible results.
- **Dial-a-Ride** is a curb-to-curb service available through prior scheduling. In some parts of Vermont, this type of service is only available to people over the age of 60 or people with disabilities, but in some regions, it is available to the general public.
- **Deviated-Fixed** routes operate along a fixed alignment or path at generally fixed times but may deviate from the route alignment to collect or drop off passengers who have requested the deviation. Many of the small town and rural bus routes in Vermont operate as deviated-fixed routes. The GTFS-flex data model combines both fixed route and dial-a-ride-like elements in a way that lets the flexible trip planner show those elements all in one cohesive itinerary.

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[26] "Shared Mobility and the Transformation of Public Transit." Sharon Feigon, Colin Murphy. See: http://nap.edu/23578

Ride Hailing

Few services exemplify the on-demand economy more than ride-hailing apps. Using a smartphone, users request a ride, track the progress of their driver in real-time, and access an integrated payment and rating system. Ride-hailing apps primarily offer their services in and around urban areas and accordingly, usage and awareness of these services among rural residents is low. According to a 2019 Pew Research report, 45% of urban residents and 40% of suburban residents have used a ride-hailing app, but only 19% of Americans living in rural areas have done so.[27]

Transportation Network Companies and Their Alternatives in Vermont

In Vermont, Transportation Network Companies (TNC) services are not available throughout the entire state, but both Uber and Lyft operate in several urban areas. The most robust presence is in Chittenden County, but there are a few drivers located in places such as Montpelier, the Upper Valley, and Brattleboro, and service is available during the ski season in major tourist areas such as Killington, Sugarbush and Stowe. Reasons for ridesharing services not being more broadly deployed in rural areas include a perceived lack of consistent demand due to low population density, poor connectivity because of the inconsistency of cell service coverage and, even where services are available, a lack of familiarity with the service.

The lower demand for trips in rural areas requires a different business model for the provision of shared-use mobility alternatives. It needs to be more socially oriented, with greater involvement of local municipalities and public transport operators to offer services at affordable prices.

Microtransit is a form of demand-responsive transit that offers flexible routing and flexible scheduling of shared-ride vehicles, often 10-15 passenger vans. The pitch to public agencies is that microtransit can be a more cost-effective way to provide service in some travel markets than fixed-route buses. Conceptually, it fits somewhere between individual private transportation (cars, taxicabs, some TNC services) and public mass transit (bus). The current implementations result from public-private partnerships, and some are subsidized. Companies can provide the technology as well as the vehicles, drivers and their management (Chariot, Lyft Shuttle, SHARE, Shotl, Split, and Via) or only the software and technology (Padam and Via).

VTrans is currently working with partners in the Montpelier area to test the concept of microtransit in a non-metropolitan environment. The project is still in the information-gathering phase, but the objective is that microtransit could reduce some of the demand for parking in downtown Montpelier and improve mobility for residents of the city and potentially the immediately surrounding towns.

Car sharing is another mobility alternative that has been tried in Vermont. CarShare Vermont (https://www.carsharevt.org) is currently operating in Burlington and Winooski with 17 vehicles available. A user-friendly website and sophisticated technology allowing people to access cars with their smartphones makes the system convenient and easy to use. It offers a variety of vehicles for different types of travel needs. Several years ago, the company tried to expand to Montpelier, but closed operations there after it did not prove economically viable.

Challenges of Technology in a Rural Environment

Given the lack of local and federal transportation funding for new infrastructure, shared mobility may be one of the most efficient and economical options to expand service, meet increased demand, and improve

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[27] "More Americans are using ride-hailing apps" Jingjing Jiang. See: https://www.pewresearch.org/fact-tank/2019/01/04/more-americans-are-using-ride-hailing-apps/

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access in low-income and low-density areas. This section discusses the potential for shared mobility and the role that technology plays in enabling it.

A barrier to the widespread adoption of new shared modes is access to information technology, a precondition to using many shared mobility services[28]. The large-scale installation of broadband connectivity in rural communities would benefit transit services as well as the general population by facilitating improved communication capabilities for both the operational management of transit services and the dissemination of information-based services to the public. Broadband infrastructure would also enable future opportunities for innovation in mobility solutions such as connected and autonomous vehicles[29].

Also, infrastructure investments that expand the availability of high-speed broadband internet can contribute to an individual's quality of life through providing social connection, facilitating the delivery of virtual services to the individual, and reducing the need for trips for non-essential goods. Despite rural broadband connectivity continuing to expand geographically, availability in rural areas still lags more densely populated areas. And, where broadband is available, barriers to Internet adoption in rural communities remain significant for individuals with low levels of family income or education.

Shared-use transportation modes depend on economies of scale. Shared-use transportation modes require a minimum level of population, household density, mix of uses, the percentage of transit commuters and walkability to flourish. The low density of dwellings and population in rural areas limits the opportunities to create efficiencies of scale in transportation networks. To counteract lower overall transportation demand, rural shared mobility services in Vermont can look to low-cost, grassroots programs that can provide these services at a low-enough cost to make it feasible for low-density environments.

The SHARE-North project (https://share-north.eu), an initiative that has advanced in developing, implementing, promoting and assessing shared-use mobility options in rural areas in the North Sea Region in Europe, has the following recommendations on ways to improve mobility:

- Share the local government fleet: especially outside office hours, cars in the governmental fleet represent an unutilized resource. With a social pricing system, for instance, it becomes possible to give lower incomes access to a car and improve the chances of maintaining social contacts or gaining access to different employment locations.
- Promote shared mobility in general: People often don't know the many opportunities of shared mobility.
- Permanent promotion on every level: Shared mobility is relatively new, promotion is much needed. Inform about shared mobility in general, to specific target groups, in particular areas, etc.
- Don't focus on the first car: In cities, it's rather easy to live without owning a car. In rural areas, it's more difficult. Not questioning the need to own a car in rural areas gives you credibility because you are showing understanding for the living situation. You can, however, ask citizens if they need a second (or even a third) car. A shared mobility solution is often a good alternative for these cars.
- Cooperate: Find the right partners, bringing together expertise from other areas is a good way to success.

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[28] "Shared Mobility and the Transformation of Public Transit." Sharon Feigon, Colin Murphy. See: http://nap.edu/23578
[29] "The Future of Rural Transportation and Mobility for Older Adults." Andrew Broderick. Available at: https://www.giaging.org/documents/180424_CITRIS_rural_mobility_paper_F.pdf

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- Be creative: assets that are underutilized can be shared and used more effectively. It's not only about materials but also about human assets and spare time.
- Be patient: don't expect success from day one or even year one. Be persistent, repeat your actions and adapt if necessary.

Many of these principles are applicable to a range of rural public transit initiatives. Only a few municipalities in Vermont have a large enough government fleet to have a real impact on local mobility, but even in small communities, one or two cars could make a difference for a group of households that lack transportation. Collaboration and promotion are critical to the success of any initiative which is different from what has been accepted as the norm in American society for decades: private auto ownership. As "home-sharing" is spreading rapidly on such platforms as AirBnB, car sharing could also see rapid growth once technological, insurance, and perception hurdles are overcome.

Public Awareness

One of the most significant challenges to operating a sustainable and successful public transit system in a rural state, such as Vermont, is establishing and maintaining public awareness of the services that are offered. This section will examine how geography, age, and income, among other factors affect the perception of public transit service. It will then look at various forms of messaging that can begin to address the presence of public transit in the public consciousness.

Geographical Differences

A Vermonter's awareness of public transit service depends, in large part, on where he or she lives. People who live in the urbanized portions of Chittenden County are very likely to be aware of bus service operated by Green Mountain Transit (formerly the Chittenden County Transportation Authority). In a 2019 survey of residents of 11 Chittenden County municipalities served by GMT, nearly 75% of respondents had actually ridden a CCTA/GMT bus at some point in their lives, and 30% had used GMT service in just the past three months. Only 8% of residents are frequent users of GMT service, but these prior numbers indicate that awareness of GMT service is widespread in Vermont's only urban area.

A statewide survey conducted as part of the Long Range Transportation Plan found that 3% of Vermonters used a "public transit bus" as their primary commuting mode and that another 8% said that they had used public transit for commuting at some point in the last year. Considering all types of travel, 8% of respondents said they used public transit frequently, and another 22% said they used it infrequently. Another 2% of respondents used intercity bus or Amtrak frequently, and about 26% used these modes infrequently. These results were not subdivided by land use type but it is clear that statewide use of public transit, and thus awareness of these services, is much lower than that seen in Chittenden County.

The MetroQuest survey done as part of the PTPP, while not based on a statistical sample, can also shed some light on the use of transit outside of Chittenden County. Among the thousand or so respondents who provided a home zip code, about 450 lived in the urban area, while 300 lived in small towns (population 2,500 to 15,000) and 260 lived in rural towns (population under 2,500). Among the urban residents, 61% said that they had used some form of public transit in the last month, while among small town residents, only 38% had done so, and among rural residents only 32% had done so. Given the nature of the survey, it is likely that the MetroQuest respondents were more knowledgeable about public transit than the general population, so that these figures are likely overestimates of total transit use. However, it is clear that use of transit is highest in the urban area, moderate in small towns, and lowest in rural areas.

Varying awareness of public transit makes sense based on the simple matter of the visibility of transit services in these various kinds of communities. Living in Burlington or the surrounding communities, it is hard to avoid seeing GMT buses or bus stops. In smaller cities and towns around the state, such as Middlebury, Rutland, Bennington, Brattleboro, Montpelier, and St. Johnsbury, bus service, while less obvious than it is in Burlington, is still relatively present, with multiple routes operating. However, in the more rural parts of the state, buses or vans may be seen only rarely. In the Northeast Kingdom, for example, most of the public transit service is provided by volunteer drivers in their own cars; this service is invisible to the general public.

Age-Related Differences

Awareness of public transit service can also be related to age, since, as discussed elsewhere in this PTPP, age is one of the key factors affecting one's ability to drive or otherwise provide mobility for oneself. Among older adults (age 65 or over), the vast majority in Vermont continue to use personal automobiles for mobility, as verified in the survey conducted as part of the *State Plan on Aging*. Some 93% of respondents said they drive for some or all of their mobility needs. At the upper end of the age range, a much lower percentage of people are still able to drive because of sight or other physical or mental limitations. Many of these oldest Vermonters make use of the "E&D" services provided in all parts of the state by the regional transit providers.

Until they reach the point when the loss of driving ability is imminent, however, few of Vermont's older adults actively seek out information about mobility options other than driving. The *State Plan on Aging* found a lot of fear among older adults that they would be stranded in their homes as soon as they could no longer drive, reflecting a lack of awareness of the availability of existing services. This lack of awareness is a problem for several reasons:

- The fear about the loss of mobility is an unnecessary stress for older adults and may cause them to continue to drive beyond the point when they should stop operating vehicles, resulting in possible health problems or vehicular accidents.
- Older adults make up a large portion of the electorate at the local level, and an unawareness of public transit service could undercut support for necessary local funding, as well as increased state funding.
- Younger retirees are one of the best sources to populate the volunteer driver networks around the state. If they don't know about these programs, they will not volunteer for them.

There is also anecdotal evidence that many older adults, even if they are aware of available transportation resources, fail to take advantage of them because they don't want to "be a burden." It is unclear how widespread this sentiment is, and if it carries through into the Baby Boom generation, but it has been seen in cases occurring under VTrans' Rides to Wellness program, in which some older adults had to be strongly encouraged to take advantage of a free ride to the health clinic to take care of a medical condition. To some extent, older adults who can no longer drive may feel defeated and powerless because of the central role the automobile plays in mobility in the US, especially in rural areas where public transit service is less available. This sense of defeat may be an obstacle toward taking advantage of other, non-auto means of transportation.

Among working-age adults (25-64), the vast majority, especially outside of Chittenden County, currently have low awareness of public transit services. There may be some awareness that services exist, but little detailed knowledge of where bus routes go and how much area is covered by demand response service.

Most people in this group likely associate public transit with service for the economically disadvantaged, or people with disabilities, or older adults—that is, people who are not able to drive themselves. In areas that do have a significant amount of bus service, people may make themselves aware of service when they need it—if their car breaks down, or if a family member without a car needs to get around. But generally, this group thinks of public transit as service for other people, rather than for themselves. The recent survey in Chittenden County shows that 55% of people in this age group agreed with the statement, "GMT is an important resource for the community, but it is not relevant to me." In other parts of the state with less transit service, that percentage is undoubtedly higher.

Younger people typically have greater awareness of public transit service. There is a well-documented national trend of younger people delaying the purchase of automobiles and relying more on public transportation, especially in metro areas.[30] In Vermont, younger people are more likely to make use of bus service to get around town or to get to after-school jobs.[31]

Income-Related Differences

In addition to geographic and age-related differences, a person's income level also affects their awareness of public transit service in Vermont. Owning and operating a car is expensive (about $8,500 annually on average[32]) and can be the second-largest line item in a household budget after housing. The great majority of people in Vermont who can afford cars go ahead and make that expenditure because of the convenience and flexibility that automobiles provide. Only 6.8% of Vermont households have no vehicles available, according to the 2017 American Community Survey (ACS), and a significant portion of these are households that cannot afford to own a car. Once a car is purchased, the household members tend to use it for most or all of their mobility needs, and thus usually do not make any effort to think about public transit options.

Of course, there are people who live in city and town centers who choose not to own a car, and these people are very aware of public transportation options available to them. In the Burlington area, the existence of Carshare Vermont makes it more possible to avoid car ownership while still having easy access to an automobile when it is needed. But these people are most likely not using Carshare on a daily basis, because that would quickly become more expensive than owning a car, and thus they are relying on other modes of travel (walking, biking, public transit) for routine mobility.

Among the 34.1% of Vermont households that own one car (ACS), there are many for whom the expenses of operating an automobile are a struggle. These "lower middle class" or "working class" households likely make use of public transit services when they are available. A common situation would be one adult using the car to get to work, while the other uses bus service to get to their own job, or to take care of household business. Alternatively, the primary worker could use a commuter bus route to get to their job, while the other adult uses the car to transport children around and take care of other errands.

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[30] https://www.citylab.com/transportation/2014/09/new-study-millennials-love-transit-most-boomers-still-stuck-on-cars/380380/ or https://www.ecolane.com/blog/millennials-using-public-transportation; or https://boston.uli.org/news/millennials-want-results/ or https://scholarcommons.usf.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1473&context=jpt
[31] The Chittenden County survey did not have enough responses in this age category to draw any conclusions.
[32] https://newsroom.aaa.com/tag/cost-to-own-a-vehicle/

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Continuing down the income scale to people in poverty, this group is more likely than not to be aware of public transit services. On-board surveys of transit riders in Vermont typically show that 40-50% of riders have household incomes of $25,000 or less.[33] People with this level of income are much less likely to be able to afford a reliable car and to keep it operating. They tend, therefore, to live in places that offer at least some public transportation service so that they can find employment and take care of other basic life needs without having to drive. Indeed, the highest concentrations of people living below the poverty line are in urbanized parts of the state in Chittenden County, as well as in places such as Brattleboro, Barre City, Bennington and Rutland. Of course, some low-income people live in remote rural areas where they may have access to very inexpensive housing. The ACS shows that every one of the 184 Census tracts in Vermont has at least 25 people below the poverty line, and 70% of tracts have between 100 and 500 people in poverty; the average number per tract is 370. People in poverty living in remote areas likely focus their resources on having a car available since they do not have any viable transit options.

Perceptions of Public Transit

Thus far, we have been considering how various segments of the population may or may not be aware of public transit services in their area. It is also important to consider how the public perceives public transit, and whether they see it as relevant to them. Four forms of public transit are discussed:

- Commuter and urban bus services
- Rural bus services
- Demand response service
- Volunteer driver service

Until the recent era of low gasoline prices took hold in 2015, a broad swath of the public saw urban bus services and commuter express services (such as those operated by GMT, and those serving the Upper Valley) as relevant to them. They may not have actually used the service themselves, but people working in the core of Chittenden County and in the Hanover-Lebanon-White River Junction area would have seen plenty of commuter buses and local bus routes and would have recognized them to be an option for them or people like them to avoid paying gas prices nearing $4 per gallon.

With the drop in gas prices since 2014, many commuters have been lured back into their cars because of the automobile's advantages in flexibility and convenience. As long as gas prices stay low, or rise by only small increments, most of these drivers will think little about public transit options, and likely assume that the people still riding the buses are unlike them, either by age or income or politics.

The ridership drop experienced by many urban and commuter bus routes in Vermont and across the country have resulted in a stagnation, or in some cases, cuts in service. If low gas prices are not enough to lure people away from transit, then service degradation would certainly tip many people over the edge and back to their own cars.

Bus services in rural areas are typically less likely to be carrying riders who are there by choice. While urban areas and larger job centers have enough travel density to support frequent bus service—which is needed to attract choice riders—most rural services are limited to a frequency of one or two trips per hour, simply because there are not enough people to justify more frequent service. (Nor is there normally funding available to support more service.) Because of the limited amount of service that can be sustainably

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[33] Green Mountain Transit Passenger Survey (Fall 2017 and prior years) is one example.

operated, most of the riders on rural services are there because of necessity, not by choice. As a result, these services are perceived to be "only for" poor, disabled, or elderly people, and most others see them as not directly relevant to their lives.

Demand response service, operated with cutaway vans, is normally seen as oriented toward people with disabilities and older adults. People mostly see these vans at senior centers, independent living complexes, social service agencies, and hospitals, and therefore associate those vehicles with those populations and those types of trips. These vans often have a headsign that says "Special" or "Paratransit" and therefore people assume (rightly, in most cases) that they are not for the general public.

Finally, volunteer driver service is essentially invisible to the general public. If they don't know someone who is a volunteer driver, or someone who has been driven somewhere by a volunteer, or seen one of the advertisements or PSAs promoting volunteer driver programs, then they likely don't know that there even are volunteer drivers in Vermont.

Spreading the Word

Given all of these barriers to public awareness of public transit service in Vermont, the question arises as to how to increase awareness generally, and among specific populations who would benefit most immediately from increased access to information. A later section of the PTPP will contain more detailed recommendations on this topic, but here we look at several possible means of getting the word out.

Partnerships with AARP, CTAA and State Agencies
VTrans has established relationships with local and national agencies and organizations. AARP, which works actively with older adults in Vermont, is engaged in the PTPP process and with VTrans more broadly and can continue to inform its members about the availability and role of public transit services in all parts of Vermont. The Community Transportation Association of America works with rural areas and small towns to help promote public transit services. While it may not be well known as an organization to the general public, it can work through many channels to spread the word about transit. VTrans works with other state agencies on an ongoing basis. The Agency of Human Services, specifically the Department of Aging and Independent Living, is thoroughly engaged with the PTPP and in developing state policies to promote the wellbeing of older adults in Vermont. All of these partnerships could benefit from additional structure and formalization to ensure that there are tangible products of the collaboration.

Developing Stories
Reports, studies and data have their role in policy development and the budgeting process, but they do not usually have much of an impact on the general consciousness. Instead, stories are needed so that people can understand the role that transit currently plays in Vermont, and the enhanced role it can play in the future. Below are three possible storylines that can be used to engage the public and raise awareness of public transit:

- **Transit and Mobility** – Transit can enhance mobility for everyone, not just people who cannot otherwise drive. As more people unshackle themselves from cars, service can be increased, making it more convenient for everyone.
- **Transit and Environment** – While Washington talks about a Green New Deal sometime in the distant future, transit offers the possibility of having a real impact on climate change right now. The

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transportation sector in Vermont accounts for about 43% of greenhouse gas emissions.[34] A broad switch to transit can lower that figure significantly.

- **Transit and Independent Living** – Transit is an option that older adults should take advantage of sooner rather than later, saving money and enhancing mobility before the dreaded day when driving is no longer feasible.

Telling the Story

Once stories such as those listed above have been developed, it is critical to use channels to get those stories into the public consciousness. Channels should include the newsmedia in Vermont, including commercial stations as well as Vermont Public Television and Vermont Public Radio. These organizations occasionally report on public transit issues, but could be engaged more fully to help spread the stories above. Public officials have a role to play in communicating to their constituents what they learn through studies such as the PTPP. Community leaders beyond elected officials can also be involved in this effort, as word of mouth among peers is often the best means of reaching into the community.

Go Vermont (www.connectingcommuters.org) is VTrans' primary portal for the general public to get information on ridesharing, public transit, and other travel information. All public outreach undertaken to help spread the word about public transit should direct people to that website, as it contains a wealth of information on transit and links to just about every type of transit service in Vermont.

Overcoming Resistance to Change

The final stage in the process of increasing awareness of public transit, is to help people overcome their resistance to change, and to actually begin to use the services they are learning about. Publicity events, travel training and incentives are among the many ways of getting people to try using public transit. The perceptions of public transit need to change as the awareness of service grows, so that more people recognize that transit is relevant to their lives and offers value to them.

Land Use and Housing Location

Over 60% of Vermont residents live in areas with low population density. The urbanized area of Burlington is the most significant exception to Vermont's rural character, with other smaller urban clusters scattered across the state. Vermont's dispersed settlement pattern poses a significant challenge to public transit, limiting transit options to demand responsive services and other non-fixed route services in most of the state. As mentioned in the section on aging, Vermont has a policy focus, articulated in the Long-Range Transportation Plan, on supporting downtowns and village centers. Locating future housing close to existing public transit and in areas designated for growth can help make public transportation more viable and efficient throughout Vermont.

Rural Character and Development Patterns

The 20th century saw an overall decline in rural Vermont's population compared to the 19th century, due to a decrease in agriculture and mill work. Vermont's rural population increased in the latter portion of the century, starting in the 1970s, spurred by the back-to-the-land movement and the proliferation of all-wheel-drive vehicles. Today, the newest phenomenon impacting development patterns in Vermont is technology;

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[34] https://anr.vermont.gov/sites/anr/files/Final%20VCAC%20Report.pdf, p. 3

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as high-speed internet becomes more prevalent, people can work, shop, and do other business remotely, allowing them to live even further from town centers.

Some quick facts about Vermont's development characteristics:

- Six out of ten Vermonters live in areas classified as rural by the census. While states in the Midwest and West have vast amounts of rural land, Vermont and Maine are the two states in the U.S. with the highest proportion of their populations living in rural areas.[35] There are many small cities and towns in Vermont which have populations too small (under 50,000) to be considered urban, but still contain many residents. The census designates 'urban clusters' – areas with populations between 2,500 and 50,000 – of which there are 19 in Vermont (see Figure 6). The landscape can feel more urban than rural in many of these small cities and towns, with ground-level shops and walkable downtowns, though the people living in these areas are still considered rural residents.

- The vast majority of people in the U.S. (86 percent) live in urban counties. Only one county in Vermont, Chittenden, is considered an urban county (there are many rural dwellers within the county as well). Three of Vermont's counties (Essex, Orange and Lamoille) are 100% rural.[36]

- Statewide, the population density is 67.9 people per square mile of land area, which is similar to the national average (2010 Census). The density by planning region in Vermont varies between 32 in the Northeast Kingdom (NVDA) and 299 in Chittenden County. The density for each region is shown in the table below.

Region	People/sq. mi.	Region	People/sq. mi.
Addison County	54	Northwest Vermont	78
Bennington County	61	Rutland County	66
Chittenden County	299	Southern Windsor	71
Central Vermont	80	Two Rivers	43
Lamoille County	55	Windham County	50
Northeast Vermont	32		

State Land Use Regulations

Vermont is one of few states that has robust planning and development controls in place at the state level. As described in more detail in Appendix E of the Long-Range Transportation, Act 250, the VTrans Corridor Planning Process, State Design Standards, Title 18 §1111 Permit Process, Act 145 Transportation Impact Fees and ongoing coordination with partner state agencies all allow VTrans and other transportation and planning organization to have a seat at the table regarding land use decisions.[37]

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[35] "Rural America," a story map by the U.S. Census Bureau. Available at: https://gis-portal.data.census.gov/arcgis/apps/MapSeries/index.html?appid=7a41374f6b03456e9d138cb014711e01
[36] Ibid.
[37] Existing Conditions and Future Trends, Appendix E of Vermont's Long-Range Transportation Plan, p. 41 et seq.

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Figure 6 | Vermont Urban Area and Clusters (2010)

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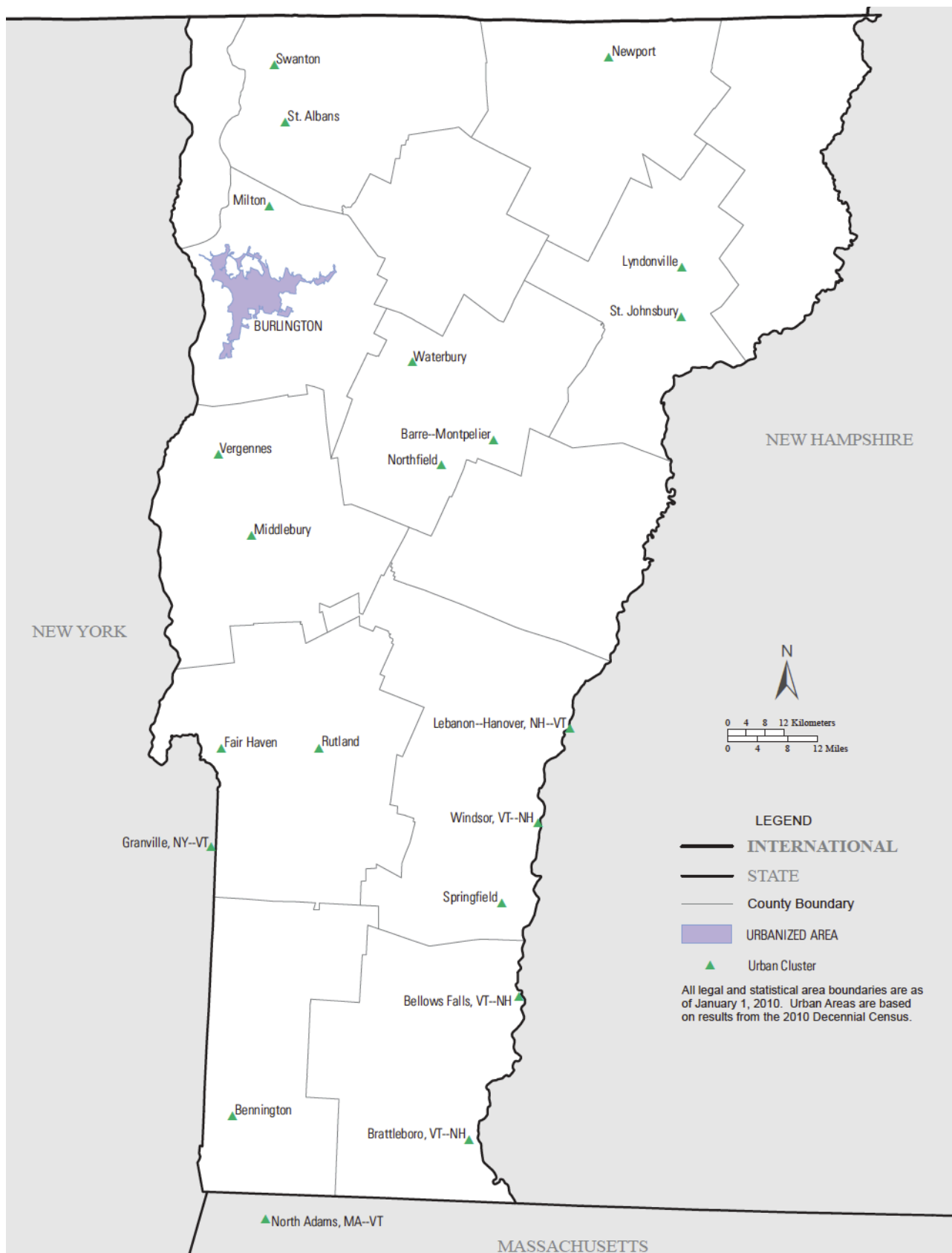
The most well-known among these processes is Act 250, Vermont's Conservation and Development law, State Land Use and Development Plans ([10 VSA 151](link)) , which has been in place since 1970. Act 250 is a state-wide land use planning law that regulates large scale developments using ten criteria related to natural resources, cultural resources, and social effects. The law requires review of certain larger-scale development proposals and subdivision activity for their impact on the surrounding area and applies 10 criteria for evaluation of the application. The legislation is intended to protect environmental resources and rural character. Some types of projects that would trigger an Act 250 review include commercial projects on more than ten acres (if the town has permanent zoning and subdivision regulations), or on more than one acre (if it does not), or the subdivision of ten residential lots or dwellings or more in a five-year period.[38] [39] [40]

In 2017 state legislators established a legislative committee, the "Commission on Act 250: the Next 50 Years," to review the original goals of Act 250, assess the outcomes, and to address new issues impacting development that have emerged in the past decades. Part of the committee's charge is to understand residents' priorities for the future of the Vermont landscape – current engagement activities include an online survey and public forums.[41]

A promising change in Act 250 reviews has been to include transit providers at the table. For development proposals that have implications for public transit, such as senior housing or affordable housing, comments from the local transit provider are sought. Developers are strongly encouraged to locate these types of projects in areas already served by public transit routes, and to accommodate transit vehicles in the design of the project as appropriate (so that a canopy at the main entrance is built high enough for a transit vehicle to pass under it, for example).

The Challenge of Public Transit in Rural Areas

The development patterns of rural communities pose a challenge regarding the availability of public transit for low-income households, people with disabilities, and elderly people who may have no access or limited access to cars. Without a car, public transit may be the only affordable option; but in most parts of the state fixed-route services are just not an option. Rural public transit relies on a demand responsive model, deviated route service, special shopping routes which only run one day a week, and other creative solutions. Because of this challenge, one USDA-funded report posits that "in rural areas, transportation policy and poverty policy are often one and the same."[42] One of the challenges of this PTPP is for VTrans to continue to pursue innovative ways to serve people in low-density areas appropriately and efficiently.

How Housing Can Address the Challenge of Public Transit in Rural Areas

In 2017, the governor released a state housing plan to provide resources for locating future housing more efficiently and providing more affordable housing options. Strategies within the plan include promoting a

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[38] "Vermont Landscapes." National Park Service.
[39] "Act 250: The Next 50 Years." Vermont Natural Resources Council. July 2018. Available at: http://vnrc.org/programs/sustainable-communities/act-250-and-permitting/act-250-the-next-50-years/
[40] "Land Use Planning in Vermont An Overview." Commission on Act 250. October 25, 2017. Available at: https://legislature.vermont.gov/assets/Documents/2018/WorkGroups/Act250/Commission%20Meeting%2010.25.17/W~Sharon%20Murray~Land%20Use%20Planning%20in%20Vermont~10-25-2017.pdf.
[41] Commission on Act 250: The Next 50 years. Vermont General Assembly. Available at: https://legislature.vermont.gov/committee/detail/2018.1/333
[42] "The Challenges of Rural Transportation." Western Rural Development Center. 2006. Available at: https://wrdc.usu.edu/files-ou/publications/pub__9373753.pdf.

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$35 million housing bond to create more mixed-income housing in areas designated for growth and increasing the number of tax increment financing districts so that new infrastructure investment will support new housing opportunities and grow jobs.[43]

Future housing development can either help address the transportation problem, or it could exacerbate the problem. Vermont desperately needs more housing located in town and village centers close to shopping and a variety of services. If one of the solutions to the transportation challenge of addressing aging in place is to make village centers attractive places to live so that seniors will choose to move there then there must be housing available for them in such places.

It must be recognized, however, that existing village and town centers are not ready for new housing construction in the near term. Legacy water and sewer systems, most of which were built over 50 years ago, do not have available capacity to accommodate new housing, and indeed are in a generally fragile state so that they can barely keep up with current demand. Frequent water main breaks in cold weather are just one signal that this basic water and sewer infrastructure needs a major investment to serve existing housing, not to mention increased housing.

If no new housing is provided in town and village centers, or if new senior/affordable/accessible housing projects are built in locations removed from shopping and services and not on existing transit routes, then the transportation problem will worsen. Additional resources would be needed, over and above current investments, to accommodate the needs of older adults, people with disabilities and low-income individuals.

Of course, housing is just one piece of the puzzle, but it is perhaps the primary piece, as shopping and other services tend to agglomerate where people reside. Carrying out the State Housing Plan, including a major investment in infrastructure, will be a wise investment that results in enormous savings of transportation resources in the future, improvements in the quality of life of Vermonters, and preservation of the essential Vermont landscape.

Key Strategies - Transportation

Harnessing technology and other creative and cost-effective solutions will be key to continuing to provide and improve public transit in rural areas.[44] Much research has been done on the topic of providing public transit and mobility options in rural areas. Some useful resources are described below.

Reconnecting America and the Community Transportation Association of America released a report exploring the best practices for public transit investments in smaller cities, towns, and rural areas.[45] Many of the strategies identified in this report relate to Vermont, as they focus on areas with a small-town character, a rural environment, and populations smaller than 50,000. Best practices and lessons learned from the report include:

1) Coordinate transit investments with transportation and other services for older adults, low-income families, workers, and people with disabilities

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[43] "Housing for All – A Plan to Strengthen the Economy." Vermont Governor's State Housing Plan. 2017. Available at: http://accd.vermont.gov/sites/accdnew/files/documents/CD/CPR/ACCD-ACT157-GovernorsHousingPlan.pdf.

[44] "Trends Analysis: How Changing Rural Demographics Impacts Rural Transit." Community Transportation Association of America. 2014. Available at: http://web1.ctaa.org/webmodules/webarticles/articlefiles/WinterSpring14_Trends.pdf.

[45] "Putting Transit to Work in Main Street America How Smaller Cities and Rural Places Are Using Transit and Mobility Investments to Strengthen Their Economies and Communities." Reconnecting America and the Community Transportation Association. May 2012. Available at: http://reconnectingamerica.org/assets/PDFs/201205ruralfinal.pdf.

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2) There is no one solution for rural transit – the solution that works must be "right-sized" for the community making the investment.
3) Coordinating with multiple partners, including cities, counties, transit agencies, employers, community stakeholders, and importantly, human services organizations, is essential in order to succeed in providing transit to rural populations.

The third point is perhaps less relevant to Vermont, as there is no county government, and there is only one transit agency per planning region. Nonetheless, coordination continues to be essential to make the best use of available resources.

AARP has a toolkit to help planners and government officials in rural areas considering alternative transportation options "beyond public transit's fixed-route and demand response programs which typically have limited service areas, days and hours of operation" to assist aging adults with mobility needs.[46] The report is an excellent reference for anyone who may need to present the ideas of innovative modes of transit and their benefits to unfamiliar audiences. The report also includes a messaging guide for communicating the importance and feasibility of additional rural transportation options to policymakers.

A report from APTA examines the connection between public transit and rural communities in terms of cost efficiency and describes successful examples of smaller community public transit programs.[47] The report includes basic information about different service options and analysis relevant to rural communities. There are numerous case studies which demonstrate a diverse array of public transit solutions in various types of rural communities across the country and around the world.

The solutions for addressing mobility in rural areas through housing, transportation, technology, and economic development are not a mystery, but they are not simple either. A sustained, coordinated effort among state agencies, municipalities, the private sector (employers, developers and property owners) and transportation providers, supported by the federal government can address the unmet needs over the medium and long term.

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[46] "Meeting Older Adults' Mobility Needs: Additional Rural Transportation Options." AARP. 2012. https://www.aarp.org/livable-communities/act/walkable-livable-communities/info-12-2012/meeting-older-adults-mobility-needs-additional-rural-transportation.html.
[47] "Public Transportation's Impact on Rural and Small Towns." APTA. Available at: https://www.apta.com/resources/reportsandpublications/Documents/APTA-Rural-Transit-2017.pdf.

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